Applicable Country & Regions: Global

Service Manual for BenQ:

LCD G925HDA

(D-SUB + Glossy Chassis Colors)

P/N: 9H.L2WLA.T8x

Product Service Manual – Level 1~2

Version: 1st
Date:03-17-2010

Notice:
For RO to input specific “Legal Requirement” in specific NS regarding to responsibility and liability statements.
Please check BenQ’s eSupport web site, http://esupport.benq.com, to ensure that you have the most recent version of this manual.

First Edition (Mar. 2010)
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Abbreviations & Acronyms

A	
ADC	Analog to Digital Converter
AFC	Automatic Frequency Control: control signal used to tune to the correct frequency
B	
BenQ	BenQ Corporation
BTSC	Broadcast Television System Committee
C	
CPU	Central Process Unit
CVBS	Composite Video Blanking and Synchronization
D	
DLP	Digital Light Processing / Texas Instruments®
DMD	Digital Micro mirror Device
DRAM	Dynamic RAM
DVI	Digital Visual Interface
DVI-D	Digital Visual Interface-digital
DVI-I	Digital Visual Interface-Integrated
E	
EEPROM	Electrically Erasable and Programmable Read Only Memory
F	
FLASH	FLASH memory
G	
G-TXT	Green Teletext
H	
HDMI	High Definition Multimedia Interface, digital audio and video interface
HP	Head Phone
I	
I^2C	Integrated IC bus
L	
LED	Light Emitting Diode
LVDS	Low Voltage Differential Signal, data transmission system for high
M	

MOSFET	Metal Oxide Semiconductor Field Effect Transistor
N	
NC	Not Connected
NVM	Non Volatile Memory: IC containing TV related data (for example, options)
O	
OSD	On Screen Display
P	
PC	Personal Computer
PCB	Printed Circuit Board (or PWB)
R	
RC	Remote Control transmitter
RGB	Red, Green and Blue. The primary color signals for TV. By mixing levels of R, G and B, all colors (Y/C) are
ROM	Read Only Memory
S	
SDA	Data signal on I^2C bus
SDRAM	Synchronous DRAM
SW	Sub Woofer / Software
T	
THD	Total Harmonic Distortion
V	
VGA	Video Graphics Array
Y	
YPbPr	Component video (Y= Luminance, Pb / Pr= Color difference signals B-Y and R-Y, other amplitudes w.r.t. to YUV)
Y/C	Video related signals: Y consists of luminance signal, blanking level and sync; C consists of color signal.

1. About this Manual

The purpose of Service Manual is to provide a guide line to engineers to repair different models. The appearance and capability is introduced in this Service Manual. It is better for repair engineer to have a rough idea of this model through reading the Service Manual. Please do pay attention to the item part of the disassembly when repair the machine and also do the protection of panel any time. When repairing the circuit board, please follow the requirement of RoHS and refer to the circuit diagram and repairing process that attached in the Service Manual. The method of firmware updated, the way of using the menu and some information that may be used when repairing are also attached in the Service Manual that provide repair engineer various choice.

1.1 Important

Only trained service personnel who are familiar with this BenQ Product shall perform service or maintenance to it. Before performing any maintenance or service, the engineer MUST read the “Important Safety Information”.

1.2 Trademark

2. Introduction

This section contains general service information, please read through carefully. It should be stored for easy access place.

2.1 RoHS (2002/95/EC) Requirements – Applied to all countries require RoHS.

The RoHS (Restriction of Hazardous Substance in Electrical and Electronic Equipment Directive) is a legal requirement by EU (European Union) for the global electronics industry which sold in EU and some counties also require this requirement. Any electrical and electronics products launched in the market after June 2006 should meet this RoHS requirements. Products launched in the market before June 2006 are not required to compliant with RoHS parts. If the original parts are not RoHS complaints, the replacement parts can be non ROHS complaints, but if the original parts are RoHS compliant, the replacement parts MUST be RoHS complaints.
If the product service or maintenance require replacing any parts, please confirming the RoHS requirement before replace them.

2.2 Safety Warning and Notice

Installation

1. Do not use your monitor under any of the following environmental conditions:
   - Extremely high or low temperature, or in direct sunlight
   - Dusty places
   - Highly humid, exposed to rain, or close to water
   - Exposed to vibrations or impacts in places such as cars, buses, trains, and other rail vehicles
   - Near heating appliances such as radiators, heaters, fuel stoves, and other heat-generating items (including audio amplifiers)
   - An enclosed place (such as a closet or bookcase) without appropriate ventilation
   - An uneven or sloping surface
   - Exposed to chemical substances or smoke
2. Do not block vents and openings by clothes or curtains.
3. Carry the monitor carefully.
4. Do not place the monitor face down on the floor or a desk surface directly. Otherwise, scratches on the panel surface may occur.
5. Do not place heavy loads on the monitor to avoid possible personal injury or damage to the monitor.
6. Ensure that children do not hang or climb onto the monitor.
7. Keep all packing bags out of reach of children.

Operation

1. To protect your eyesight, please refer to the user manual to set the optimal screen resolution and the viewing distance.
2. To reduce eye fatigue, take a break on a regular basis while using the monitor.
   Avoid taking either one of the following actions for a long time. Otherwise, burn marks may occur.
   - Use the monitor in the aspect ratio of 4:3, 5:4, or 16:10.
   - Place a still image (such as an OSD menu, fixed text or image) on the screen.
3. To avoid possible damage to the monitor, do not touch the monitor panel by hand, pen, or any other sharp objects.
4. Excessively frequent plug and unplug of video connectors (D-sub) may cause damage to the monitor.
5. This monitor is designed mainly for personal use. If you want to use the monitor in a public place or a harsh environment, contact your nearest BenQ service center for assistance.
6. To avoid possible electric shock, do not dissemble or repair the monitor.
7. If a bad smell or an abnormal sound appears to come from the monitor, contact your nearest BenQ service center for assistance immediately.

Cleaning

1. Ensure that the power is unplugged before cleaning your monitor
2. Use a monitor cleaner and a soft cloth to clean your monitor.
3. Do not use solvents such as alcohol to clean your monitor.

Power

1. To avoid possible damage to the monitor, do not use it in a region where power supply is unstable.
2. Ensure that the power cord is connected to a grounded power outlet before turning on the monitor.
3. Use only the power cord provided by BenQ.
4. Never use a power cord that appears to be damaged or frayed.
5. To avoid possible danger, observe the total electric load when using the monitor with a (multi-outlet) extension cord.
6. Always turn off the monitor before unplugging the power cord.

2.3 Compliance Statement

Caution: This Optical Storage Product contains a Laser device. Refer to the product specifications and your local Laser Safety Compliance Requirements.

3. General Description

This new LCD (Liquid Crystal Display) monitor BenQ G925HDA offers numerous features and functions, for example:

- TFT display (Thin Film Transistor; active matrix)
- Minimal space requirements thanks to slim casing
- Optimum ergonomic characteristics (totally distortion-free, excellent picture definition and color purity right into the corners)
- Contrast ratio 20000:1, brightness 250nits
- MAX. resolution (1366x768)
- Presentation of up to 16.7 M colors (in conjunction with an appropriate graphics card)
- Automatic scanning of horizontal frequencies from 30 to 63 KHz and refresh rates (vertical frequencies) from 50 to 76 Hz (absolutely flicker-free)
- Digital screen controller with microprocessor for storing 15 different display modes
- Freely adjustable color alignment for matching the screen colors to the colors of various input and output devices
- Convenient operation via integrated OSD (On-Screen-display) menu
- VESA-DDC compatibility
- Plug & play capability
- Power management for reducing power consumption when the computer is not in use

This operating manual contains important information you require to start up and run your LCD monitor.
This specification defines the requirements for the 18.5″ MICROPROCESSOR based Multi-mode supported high resolution color LCD monitor. This monitor can be directly connected to general 15-pin VGA connector, also supports VESA DPMS power management and plug & play function.

Additional information

Due to the nature of liquid crystal display (LCD) technology, the picture resolution is always fixed. For the best display performance, please set the display resolution to 1366x768 pixels with an aspect ratio of 16:9. This is called “Native Resolution” or maximal resolution - that is, the clearest picture. Lower resolutions are displayed on a full screen through an interpolation circuit. Image blurring across pixel boundaries can occur with the interpolated resolution depending upon the image type and its initial resolution.

4. Related service information

This Service Manual contains general information. There are 2 levels of service:

Level 1: Cosmetic / Appearance / Alignment Service

Level 2: Circuit Board or Standard Parts Replacement

Service Web Site

eSupport URL: **http://esupport.benq.com**

5. Product Overview

5.1 Monitor Specifications

		G925HDA **Configuration (D-sub)**
Panel / Display	Panel Type (TN / VA / IPS)	TN
	Panel Size	18.5"W(2 lamps)
	Display Area	403.4 x 254.6
	Max. Resolution	1366x768
	Pixel Pitch	0.10*RGB(H)mm x 0.30(V)mm
	Brightness (Typ.)	200 nits
	Contrast Ratio (Typ.) / DCR (Min.)	600:1 (Panel) /40000:1 (DCR TYP) Min :20000:1
	Viewing Angle (H/V), CR≧10	90/50
	Display Colors	16.7M (6bit+Hi-FRC)
	Response Time	5ms (Tr+Tf)
	GtG response Time	N/A
	NTSC ratio	0.72
	Panel maker	LGD
Video	BenQ SenseyeTM Technology	Yes
	BenQ SenseyeTM Preset Modes	5 Modes (by hotkey) : Standard / Movie / Dynamic / Photo / s-RGB
	Color Temperature Selection	Normal (6500°K) / Reddish (5800°K) / Bluish (9300°K) / User Mode
	Hor. Frequency (KHz)	30~63KHz
	Ver. Frequency (Hz)	50Hz~76Hz
	Video Bandwidth (MHz)	110Mhz
Audio	Speakers (built-in)	N/A
Input/Output	PC Video Input	D-sub
	Audio line in	No
	Earphone Jack	No
Power Supply	Voltage Rating	AC: 100~240V (Built-in)
	Power-On Mode	23W
	Standby Mode	<1W

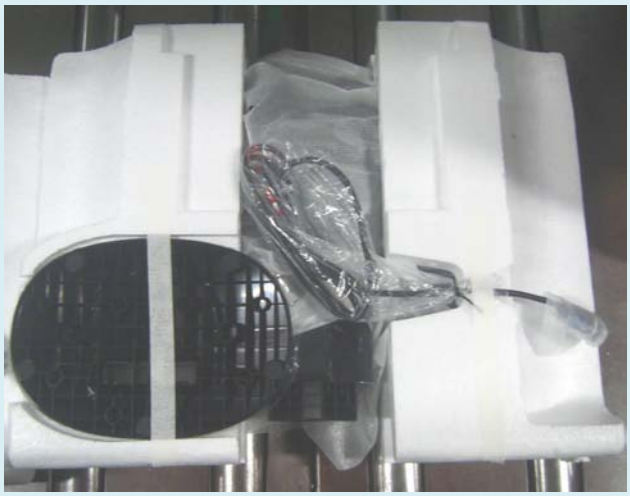
	Power Off Mode	<0.5W
Mechanical Design	Chassis Colors	Silver Black/Black
	Carton	Original carton with BE flute
	Power LED	Green (ON)/ Amber (Standby)
	Tilt (Up / Down)	20° ~ -5°
	VESA Wall Mount	100 x 100mm
	Kensington Lock	Yes
	Physical Dimension (WxHxD)	TBD
	Box Dimension (WxHxD)	TBD
	Net Weight (Esti.)	TBD
	Gross Weight (Esti.)	TBD
	Container Loading (40')	2070
	Container Loading (20')	990
Multi-language Support	OSD	17 Languages (English / Francais / Deutsch / Italiano / Espanol / Polish / Czech / Hungarian / Serbo-croatian / Romanian / Netherlands / Russian / Swedish / Protuguese / Japanese / Chinese / S-Chinese)
Other feature	Vista	Vista Basic
Accessories		VGA cable, power cord, warranty card, quick start guide, CD manual
Regulation Approvals		Refer to the worksheet "RFQ-Regulatory"

5.2 Packing

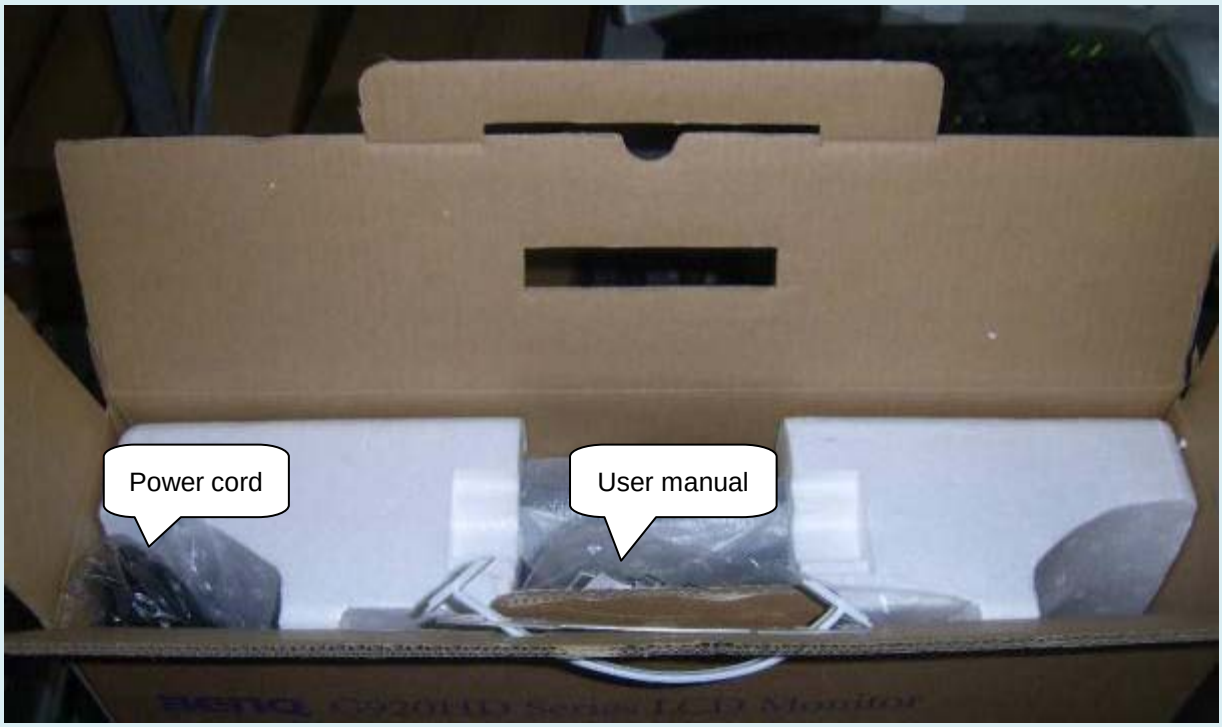
When packing the monitor into the carton, please follow the pictures as below.

1. Using the EPE bag to pack the monitor without base

2. Using the EPS to pack the monitor



3. Putting the user manual and power cord in the position as the picture shows below.



Level 1 Cosmetic / Appearance / Alignment Service

Visual Inspection & Cleaning

- Cleaning. Always unplug your monitor from the wall outlet before cleaning. Clean the LCD monitor surface with a lint-free, non-abrasive cloth. Avoid using any liquid, aerosol or glass cleaners.
- Slots and openings on the back or top of the cabinet are for ventilation. They must not be blocked or covered. Your monitor should never be placed near or over a radiator or heat source, or in a built-in installation unless proper ventilation is provided.
- Never push objects or spill liquid of any kind into this product.

Software/Firmware Upgrade Process

Hardware Requirement:

1) ISP board (715GT034-D for BenQ)
2) Printer cable(x1), VGA cable (x1), 12V DC power source
3) PC or notebook with parallel (printer) port x 1

Software Requirement:

1) PORT95NT.exe
2) Realtek_ISP_Tool 3Bank For BenQ ver4.3.exe
3) TPVDDC.exe

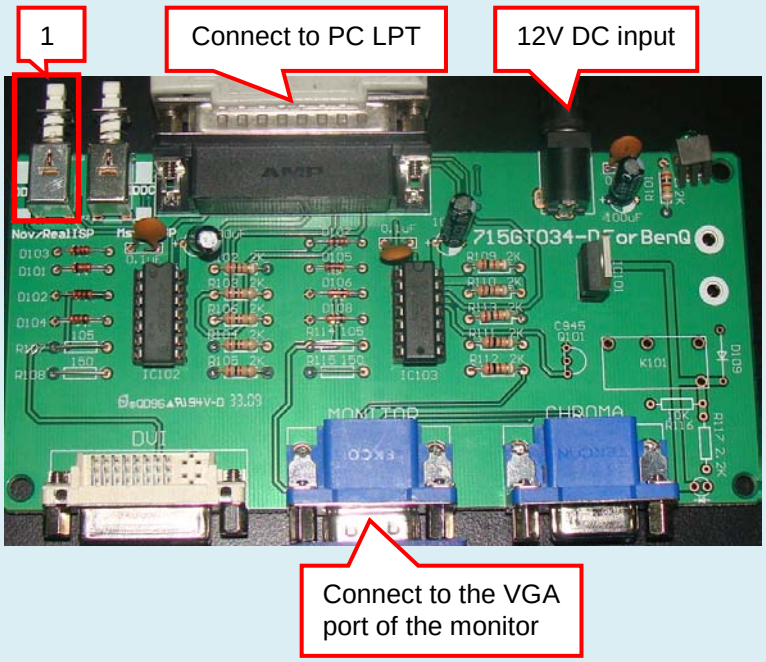
Step 1: Install the “PORT95NT.exe”

1. Double click the icon

to install the “PORT95NT”, and then restart the computer.

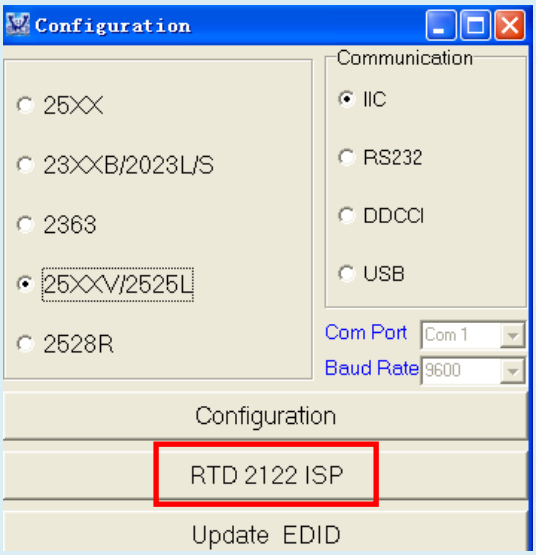
Step 2: Writing the ISP data

1. Press the button 1 and connect the ISP board as follow:

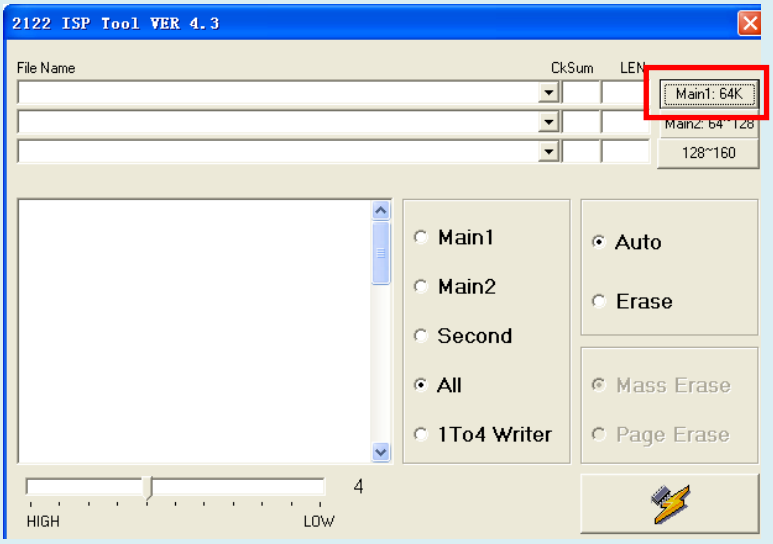


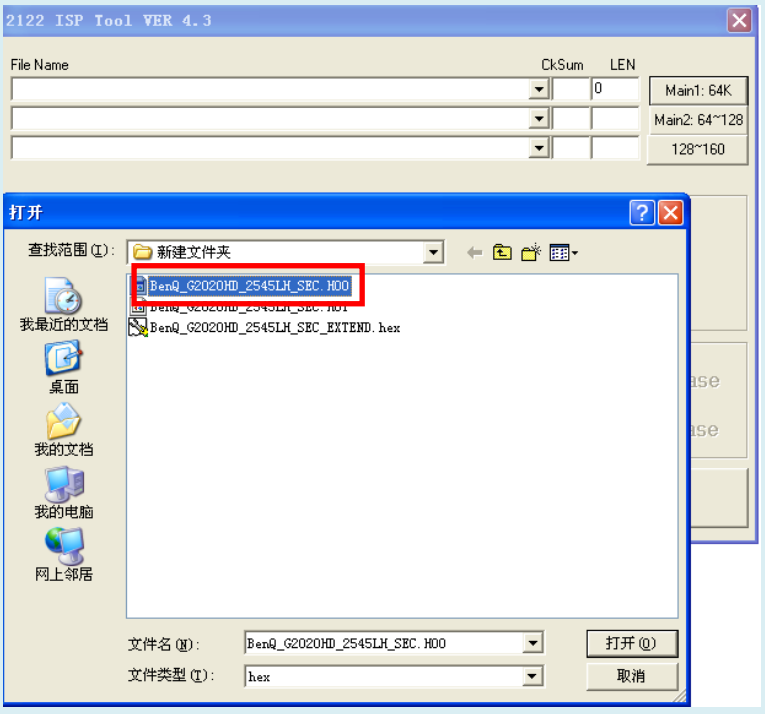
2. Open the software “Realtek_ISP_Tool 3Bank For BenQ ver4.3.exe”, and then click “RTD 2122 ISP”

   Note: The process of the ISP writing takes G2020HD for example.

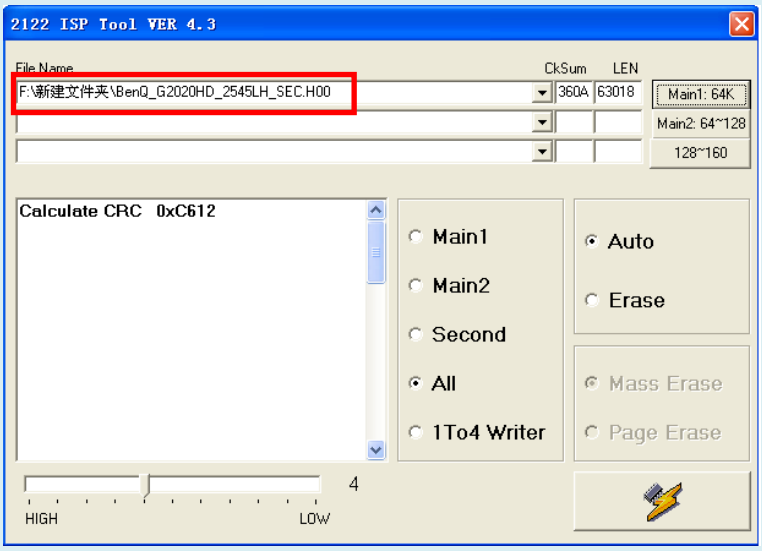


3. Click “Main1: 64k”, and choose the file “BenQ G2020HD 2545LH _SEC.H00”

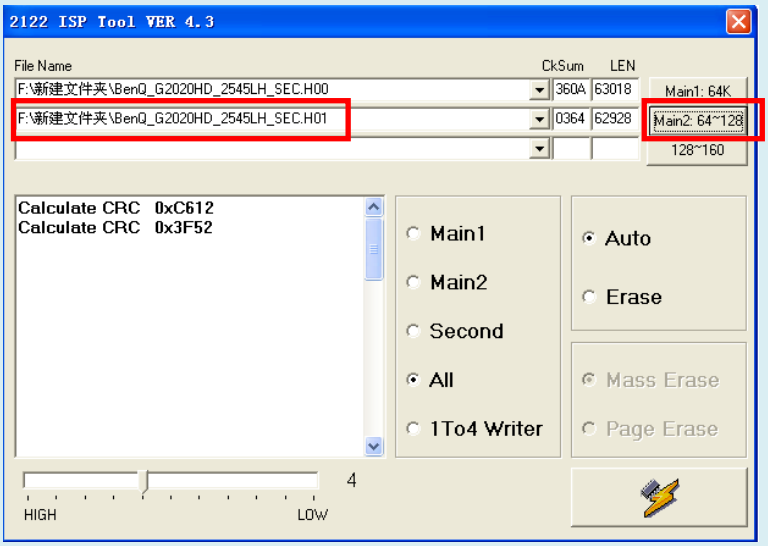




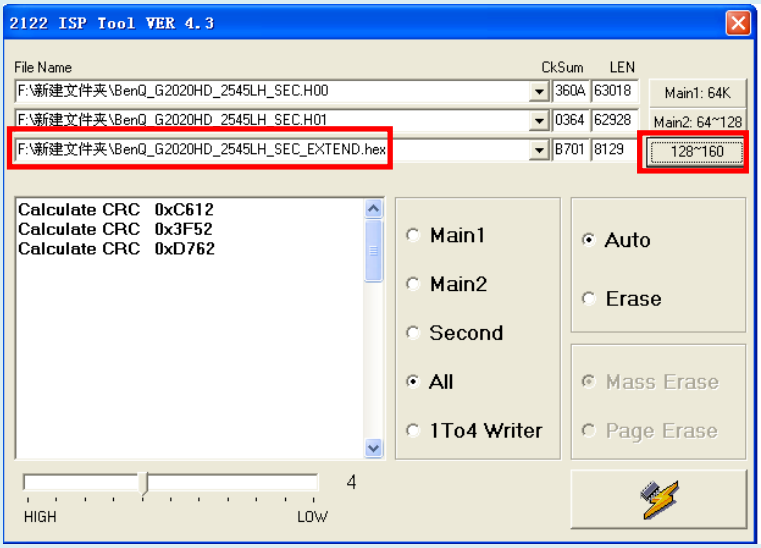
4. Click “Open”, it will show the below picture



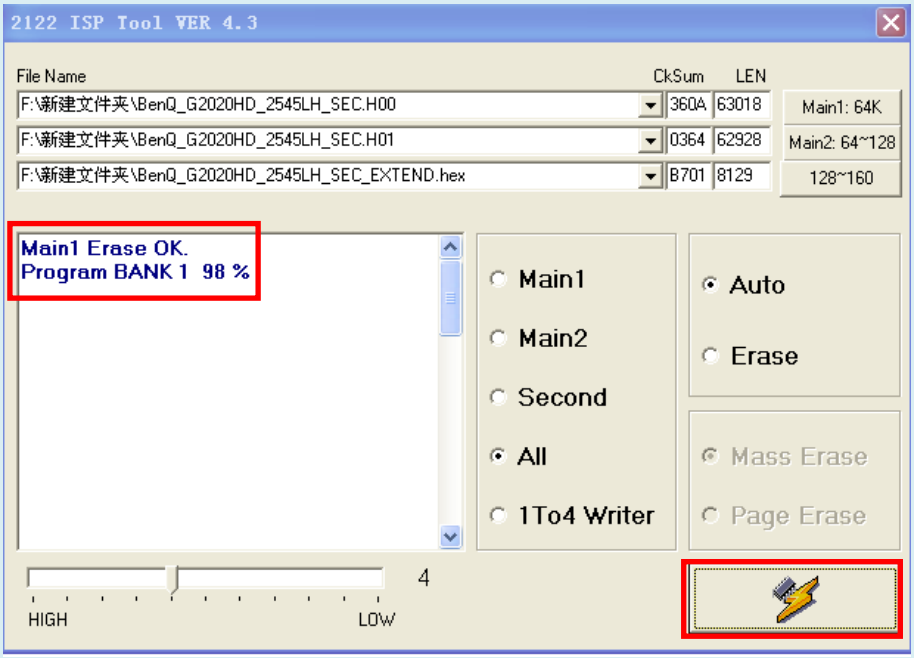
5. Click “Main2: 64~128K”, and choose the file “BenQ G2020HD 2545LH _SEC.H01”

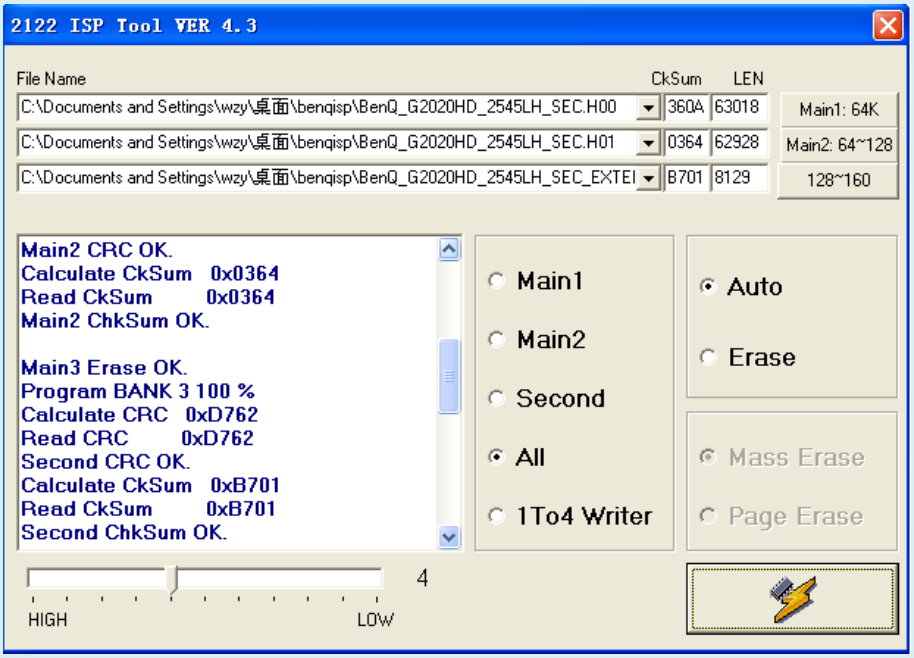


6. Click “128~160”, and choose the file “BenQ G2020HD 2545LH _SEC_EXTEND.hex”



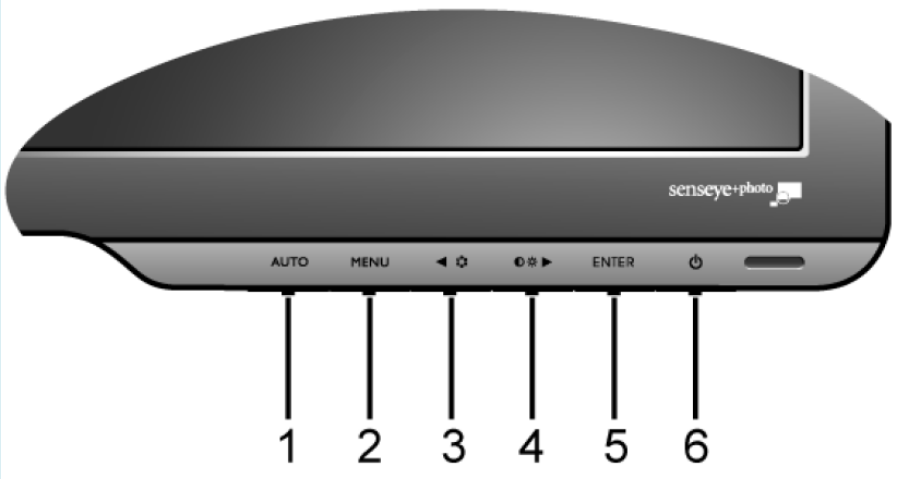
7. Click , if it is successful it will show the below pictures:





Adjustment / Alignment Procedure

The Control Panel



1. "**AUTO**": Adjust vertical position, phase, horizontal position and pixel clock automatically.
2. "**MENU**" key: Activate OSD main menu and return to the previous menu or exit OSD.
3. ◄ **/Mode** key: For Left/Decrease adjustment. The key is the hot key for Mode.
4. ► **/Contrast/Brightness** key: For Right/Increase adjustment. The key is the hot key for Brightness and Contrast.
5. **"ENTER"** key: Enter sub menus and select items. For models with DVI inputs, this key is also the hot key for Input.
6. **"Power":** Turn the power on or off.

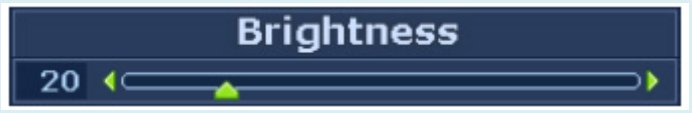
OSD = On Screen Display.

The hot keys will display a graduated scale for adjusting the value of that setting, and will only operate while the OSD menu is not currently displaying. Hot key displays will disappear after a few seconds of no key activity.

Hot Key Mode

The monitor keys perform as hot keys to provide direct access to particular functions whenever the menu isn't currently displaying on-screen.

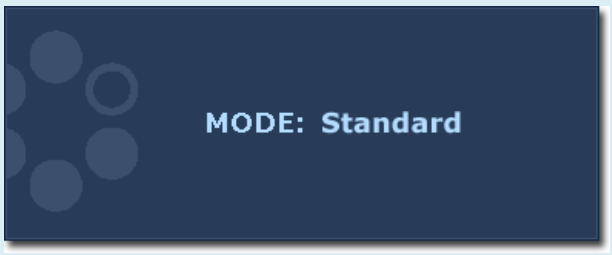
Brightness and Contrast hot keys



Press the ► key to display the Brightness and Contrast indicators. Further press the the ◄or ► keys, then the ENTER key to select Brightness or Contrast. The ► key will increase the level, while the ◄ key will decrease the level.

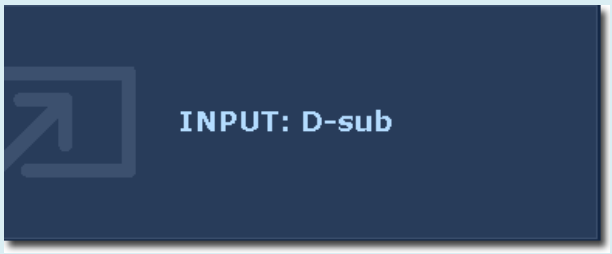
To exit, press the **MENU** key.

Mode Hot Key



Press the ◄ key continually to switch between the 6 modes for the main window, including **Standard**, **Movie**, **Dynamics**, **Photo**, and **sRGB**. The setting will take effect immediately.

Input Hot Key



Press the **ENTER** key to toggle between different PC video signal inputs that may be connected to your monitor. The setting will take effect immediately.

Main Menu Mode

You can use the OSD (On Screen Display) menu to adjust all the settings on your monitor.

Press the **MENU** key to display the following main OSD menu.

There are five main OSD menus:

1. Display
2. Picture
3. Picture Advanced
4. System

Use ◄ (left) or ► (right) keys to highlight a menu item, and press the **ENTER** key to enter the Menu item settings.

The OSD menu languages may differ from the product supplied to your region.

Display Menu

1. Press the **MENU** key to display the main menu.
2. Press ◄ or ► keys to select **DISPLAY** and then press the **ENTER** key to enter the menu.
3. Press ◄ or ► keys to move the highlight to a menu item and then press the **ENTER** key to select that item.
4. Press ◄ or ► keys to make adjustments or selections.
5. To return to the previous menu, press the **MENU** key.

Item	Function	Operation	Range
Auto Adjustment	Optimizes and adjusts the screen settings automatically for you. The **AUTO** key is a 'hot key' for this function. ☞ When you connect a digital video output using a digital (DVI) cable to your monitor, the **AUTO** key and the **Auto Adjustment** function will be disabled.	Press the **ENTER** key to select this option and make adjustment.	
H. Position	Adjusts the horizontal position of the screen image.	Press ◄ or ► keys to adjust the value.	0 to 100
V. Position	Adjusts the vertical position of the screen image.		0 to 100
Pixel Clock	Adjusts the pixel clock frequency timing to synchronize with the analog input video signal. Not applicable to a digital input signal.		0 to 100
Phase	Adjusts the pixel clock phase timing to synchronize with the analog input video signal. Not applicable to a digital input signal.		0 to 63

Picture Menu

1. Press the **MENU** key to display the main menu.
2. Press ◄ or ► keys to select **PICTURE** and then press the **ENTER** key to enter the menu.
3. Press ◄ or ► keys to move the highlight to a menu item and then press the **ENTER** key to select that item.
4. Press ◄ or ► keys to make adjustments or selections.
5. To return to the previous menu, press the **MENU** button.

Item	Function	Operation	Range
Brightness	Adjusts the balance between light and dark shades.	Press the ► key to increase the brightness and press the ◄ key to decrease the brightness.	0 to 100
Contrast	Adjusts the degree of difference between darkness and lightness.	Press the ►key to increase the contrast and press the ◄ key to decrease the contrast.	0 to 100
Sharpness	Adjusts the clarity and visibility of the edges of the subjects in the image.	Press the ► key to improve the crispness of the display and press the ◄ key to have softness effect on the display.	1 to 5
Color - Press **ENTER** to enter the **Color** menu.			
Normal	Allows video and still photographs to be viewed with natural coloring. This is the factory default color.	Press ◄ or ► keys to select this option.	
Bluish	Applies a cool tint to the image and is factory pre-set to the PC industry standard white color.		
Reddish	Applies a warm tint to the image and is factory pre-set to the news print standard white color.		
User Mode	Tailors the image color tint. The blend of the Red, Green and Blue primary colors can be altered to change the color tint of the image. Decreasing one or more of the colors will reduce their respective influence on the color tint of the image. (e.g. if you reduce the Blue level the image will gradually take on a yellowish tint. If you reduce Green, the image will become a magenta tint.)	Press ◄ or ► keys and the **ENTER** key to select **Red**, **Green**, or **Blue**. Then use Press ◄ or ► keys to make the color adjustments.	• Red (0 to 100) • Green (0 to 100) • Blue (0 to 100)
	Hue: Adjustment the degree of how we perceive colors	Press ◄ or ► keys to adjust the settings.	0 to 100
	Saturation: Adjust the purity degree of colors.	Press ◄ or ► keys to adjust the settings.	0 to 100
	☞ The above options for Hue and Saturation are available only if the signal source is Component Video or HDMI.		

Reset Color	Resets the **User Mode** custom color settings to the factory defaults.	Press ◄ or ► keys to adjust the settings.	YES NO
Press **MENU** to leave the Color menu.			
Dynamic Contrast (available when the **Picture Mode** is set to **Photo**, **Dynamics**, or **Movie**)	The function is to automatically detect the distribution of an input visual signal, and then to create the optimal contrast. The higher the level, the more detailed picture possible will be displayed.	Press the ENTER key to select this option. Press ◄ or ► keys to change the settings.	0 to 5

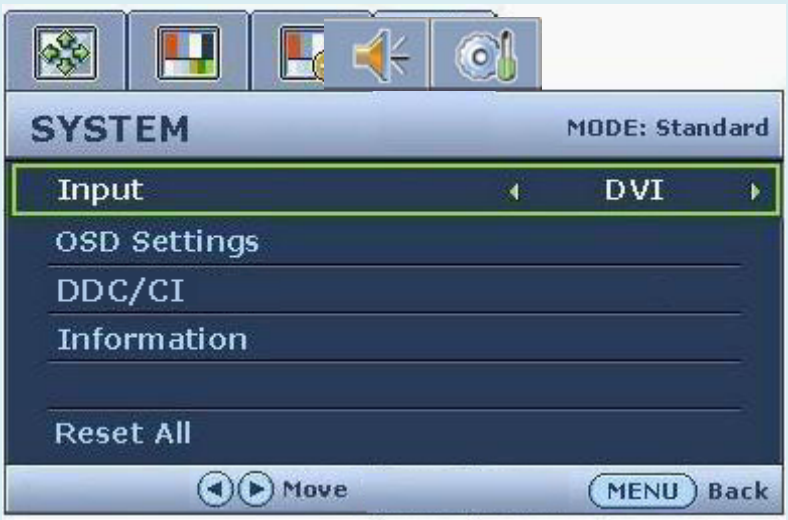
Picture Advanced Menu

1. Press the **MENU** key to display the main menu.
2. Press ◄ or ► keys to select **PICTURE ADVANCED** and then press the **ENTER** key to enter the menu.
3. Press ◄ or ► keys to move the highlight to a menu item and then press the **ENTER** key to select that item.
4. Press ◄ or ► keys to make adjustments or selections.
5. To return to the previous menu, press the **MENU** button.

Item	Function	Operation	Range
Picture Mode	Selects a picture mode that best suits the type of images shown on the screen. • Standard - for basic PC application. • Movie - for viewing videos. • Dynamics - for viewing landscape-specific videos and playing games. • Photo - for viewing still images. • sRGB - for better color matching representation with the peripheral devices, such as printers, DSCs, etc.	Press ◄ or ► keys to change the settings.	Standard Movie Dynamics Photo sRGB

Senseye Demo (available when the **Picture Mode** is set to **Photo**, **Dynamics**, or **Movie**)	Displays the preview of screen images under the selected mode from **Picture Mode**. The screen will be divided into two windows; the left window demonstrates images of Standard mode, while the right window presents the images under the specified mode.	Press ◄ or ► keys to change the settings.	ON OFF
Display Mode	This feature is provided to allow aspect ratio's other than 16:9 to be displayed without geometric distortion. • Full - Scales the input image to fill the screen. Ideal for 16:9 aspect images. • Aspect - The input image is displayed without geometric distortion filling as much of the display as possible.	Press ◄ or ► keys to change the settings.	• Full • Aspect

System menu



1. Press the **MENU** key to display the main menu.
2. Press ◄ or ► keys to select **SYSTEM** and then press the **ENTER** key to enter the menu.
3. Press ◄ or ► keys to move the highlight to a menu item and then press the **ENTER** key to select that item.
4. Press ◄ or ► keys to make adjustments or selections.
5. To return to the previous menu, press the **MENU** button.

Item	Function	Operation	Range
Input	Use this to change the input to that appropriate to your video cable connection type.	Press ◄ or ► keys to change the setting.	D-sub (VGA)
OSD Settings - Press **ENTER** to enter the **OSD Settings** menu.			

Language	Sets the OSD menu Language.	Press ◄ or ► keys to change the settings. ☞ The language options displayed on your OSD may differ from those shown on the right, depending on the product supplied in your region.	• English • French • German • Italian • Spanish • Polish • Czech • Hungarian • Serbo-Croatian • Romanian • Dutch • Russian • Swedish • Portuguese • Japanese • Traditional Chinese • Simplified Chinese
H. Position	Adjusts the horizontal position of the OSD menu.	Press ◄ or ► keys to change the settings.	0 to 100
V. Position	Adjusts the vertical position of the OSD menu.		0 to 100
Display Time	Adjusts the display the OSD menu.		5 / 10 / 15 / 20 / 25 / 30 sec
OSD Lock	Prevents all the monitor settings from being accidentally changed. When this function is activated, the OSD controls and hotkey operations will be disabled.	Press ◄ or ► keys to change the settings. ☞ To unlock the OSD controls when the OSD is preset to be locked, press and hold the "MENU" key for 15 seconds to enter the "OSD Lock" option and make changes. Alternatively, you may use ◄ or ► keys to select "NO" in the "OSD Lock" submenu from the "OSD Settings" menu, and all OSD controls will be accessible.	YES NO
Press **MENU** to leave the OSD Settings menu.			
DDC/CI*	Allows the monitor settings to be set through the software on the PC.	Press the **ENTER** key to select this option. Press ◄ or ► keys to	ON OFF

		change the settings.	
Information	Displays the current monitor property settings.	Press the **ENTER** key to select this option.	
Reset All	Resets all mode, color and geometry settings to the factory default values.	Press ◄ or ► keys to change the settings.	YES NO

*DDC/CI, short for Display Data Channel/Command Interface, which was developed by Video Electronics Standards Association (VESA). DDC/CI capability allows monitor controls to be sent via the software for remote diagnostics.

Display Timing Table

Pixel Format	Hor. Frequency (kHz)	Ver. Frequency (Hz)	Pixel Clock (MHz)	Source
640 x 350	31.47	70.09	25.18	VGA
640 x 480	31.47	59.94	25.175	VGA
640 x 480	37.50	75.00	31.500	VGA
720 x 400	31.47	70.08	28.321	VGA
800 x 600	37.88	60.32	40.000	VESA
800 x 600	46.88	75.00	49.500	VESA
832 x 624	49.72	74.55	57.283	MAC
1024 x 768	48.36	60.00	65.000	VESA
1024 x 768	60.02	75.03	78.750	VESA
1024 x 768	68.68	85.00	94.500	VESA
1152 x 720	44.86	60.00	66.750	CVT 0.83MA, DVT 16:10
1152 x 870	68.68	75.06	100.000	MAC
1152 x 900	61.80	65.96	92.978	SUN
1280 x 768	47.396	60.0	68.25	CVT 0.98M9-R
1280x800	49.702	59.81	83.5	CVT-8
1280x800	62.8	75	106.5	
1280x720	45.00	59.94	74.25	
1280x720	44.77	59.86	74.5	
1280x720	56.46	74.78	95.75	
1280 x 960	60.00	60.00	108.000	VESA
1280 x 1024	63.98	60.02	108.000	VESA
1280 x 1024	79.98	75.02	135.000	VESA
1280 x 1024	91.15	85.02	157.500	VESA
1360x768	47.7	60.01	85.5	VESA
1366x768	47.76	59.85	85.5	
1440 x 900	55.94	59.89	106.500	CVT 1.30MA
1440x900-R	55.94	59.89	88.75	
1440 x 900	70.6	75	136.75	

- Image disruption may occur as a result of signal frequency differences from graphic cards which do not correspond with the usual standard. This is not, however, an error. You may improve this situation by altering an automatic setting or by manually changing the phase setting and the pixel frequency from the “DISPLAY” menu.
- To extend the service life of the product, we recommend that you use your computer's power management function.

Factory OSD Menu

Turn off the monitor, keep pressing the “MENU” buttons, and turn on the monitor, then when we press the MENU button, the factory OSD will be at the left top of the panel as below (takes E2220HD for example):

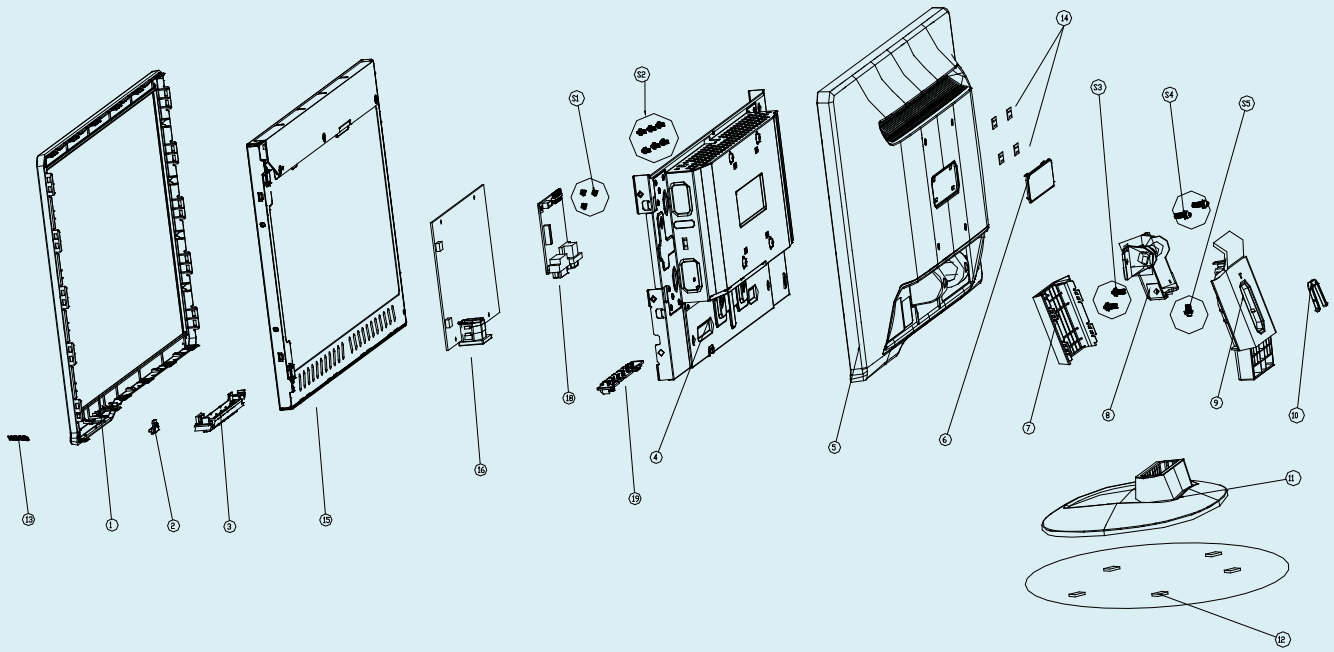
BenQ Service Page
Model name : E2220HD
S/N : ETD8900177019
Vender : TPV
Panel : M215HW01 V0
Scaler : MST TSUM58KDT
F/W Version : V18/20090811
Monitor On Time : 00090 Hr 20 Min
Backlight On Time : 00072 Hr 40 Min
DVI HDCP On Off
HDMI HDCP On Off
Logo On Off
AutoPower On Off
Timer Reset
(Enter the service mode: Power On+Menu)

BenQ Service Page

1. Trigger method: press “Menu” key and Power on.
2. Press the menu key will display the service page
3. Press the menu key will close the service page.
4. Power off will quit the service mode
5. At the service mode, the key function is same as normal OSD define.
6. The timer can only reset at the service mode by “Timer Reset” (Timer Reset moves to SI factory Area). And need to have a warning message to double confirm the reset function. The timer should record up to 99999 hours and will be reset once launch.
7. Add two selected items for DVI HDCP at Service menu
   HDMI HPD: To enable the hot plug pin detection. (HDMI port default: On)
   DVI HDCP: To disable the hot plug pin detection. (DVI port default: on)
8. Add BenQ logo on/off item, the default is “on”
9. Add the auto power on item, the default is “off ”
10. Add the timer reset warning message, when select the timer reset item, then the warning message will display and need to confirm it again and the default is “No”.
11. Panel type define need to have the panel version.
12. F/W version need to define the dual or analog model.

Level 2 Circuit Board and Standard Parts Replacement

Product Exploded View

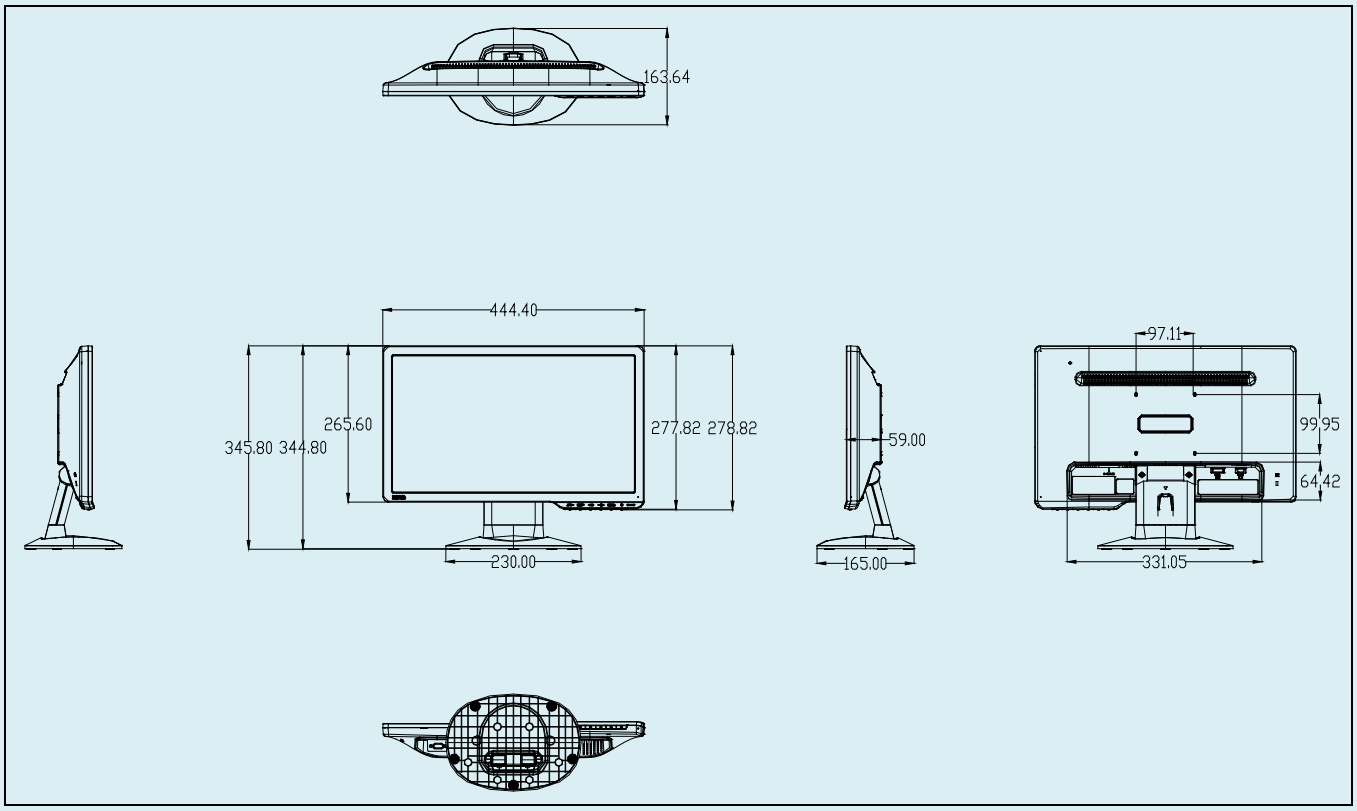


Note: The parts information listed below are for reference only, and are subject to change without notice. Please go to http://cs.tpv.com.cn/hello1.asp for the latest information.

Item	Part NO.	Description	QTY	Unit
1	Q34G0543ADP 3B0100	BEZEL(L185W-9benq)	1	PCS
2	Q33G0288 2 1C0100	LENS	1	PCS
3	Q33G0287ADP 1L0100	KEY PAD	1	PCS
4	Q15G0405801	MAINFRAME	1	PCS
5	Q34G0544ADP EB0130	REAR COVER18.5"	1	PCS
6	Q33G0289ADPA1L0100	LOGO COVER	1	PCS
7	Q34G0545ADP 1B0100	Stand-Front	1	PCS
8	Q37G0125011	hinge	1	PCS
9	Q34G0546ADP 1B0130	Stand-Back	1	PCS
10	A33G0251ADP 2L0100	CABLE CLIP	1	PCS
11	Q34G0547ADP 1B0101	BASE	1	PCS
12	Q12G6082 1	FOOT PAD	1	PCS
13	Q23G3178881 1A	LOGO for black	1	PCS
14	P15G8299 3	BKT-VESA	1	PCS
15	750GLU185X1854N000	PANEL M185XW01 V80D SH AUO	1	PCS
16	715G3327M02001004S	MAIN BOARD	1	PCS

18	715G2852 3 4	POWER BOARD	1	PCS
19	715G3367 2	KEY BOARD	1	PCS
SCREW				
Item	**Part NO.**	**Description**	**QTY**	**Unit**
S1	0M1G 130 6120	PANEL& MAINFRAME	3	PCS
S2	0M1G1030 6120	PCB & MAINFRAME	4	PCS
S3	AQ1G1740 12120	HINGE & STAND	2	PCS
S4	0M1G1740 8 47 CR3	HINGE & STAND	1	PCS
S5	AM1G1740 12 47 CR3	HINGE & STAND&MAINFRAME	2	PCS
ART.				
	Part NO.	**Description**	**QTY.**	**Unit**
	Q44G8015101	EPS	1	PCS
	Q44G8015201	EPS	1	PCS
	Q44G8015624 1A	CARTON	1	PCS

Six Angles' View



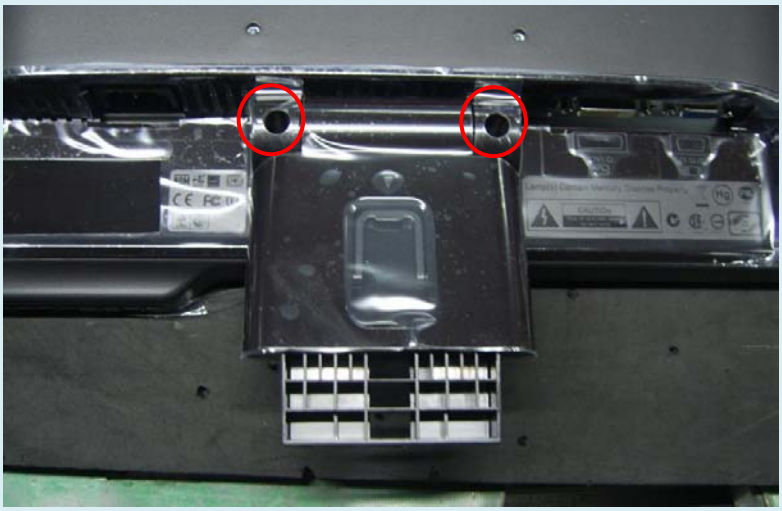
Product Disassembly

1) Remove the base

Place the monitor face down on a smooth surface. Be careful to avoid scratch and injury during the process of uninstall. And then remove the base.

2) Remove the stand

Be careful to avoid scratch and injury during the process of uninstall. And then remove the screws in red to remove the base.

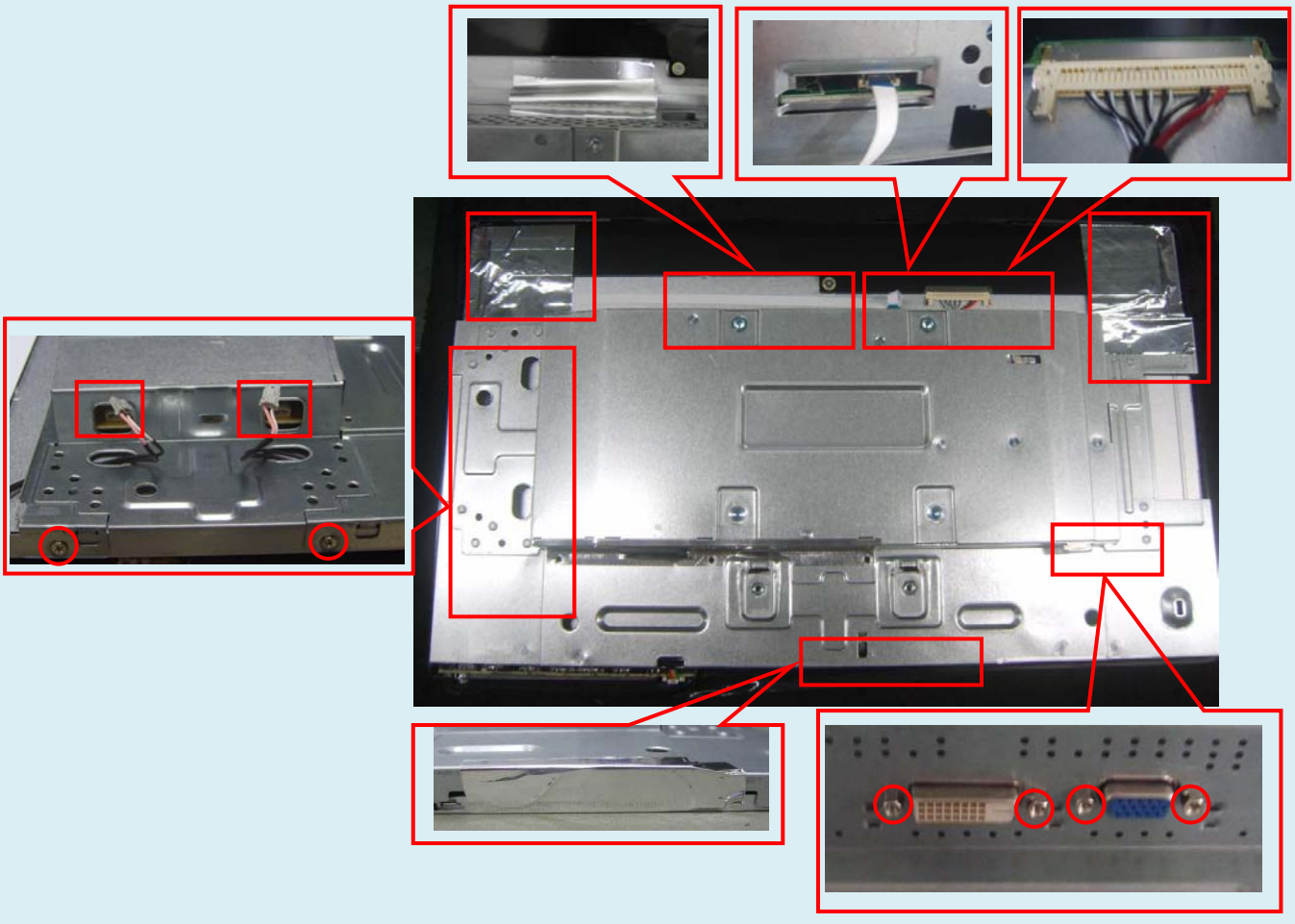


3) Remove the rear cover

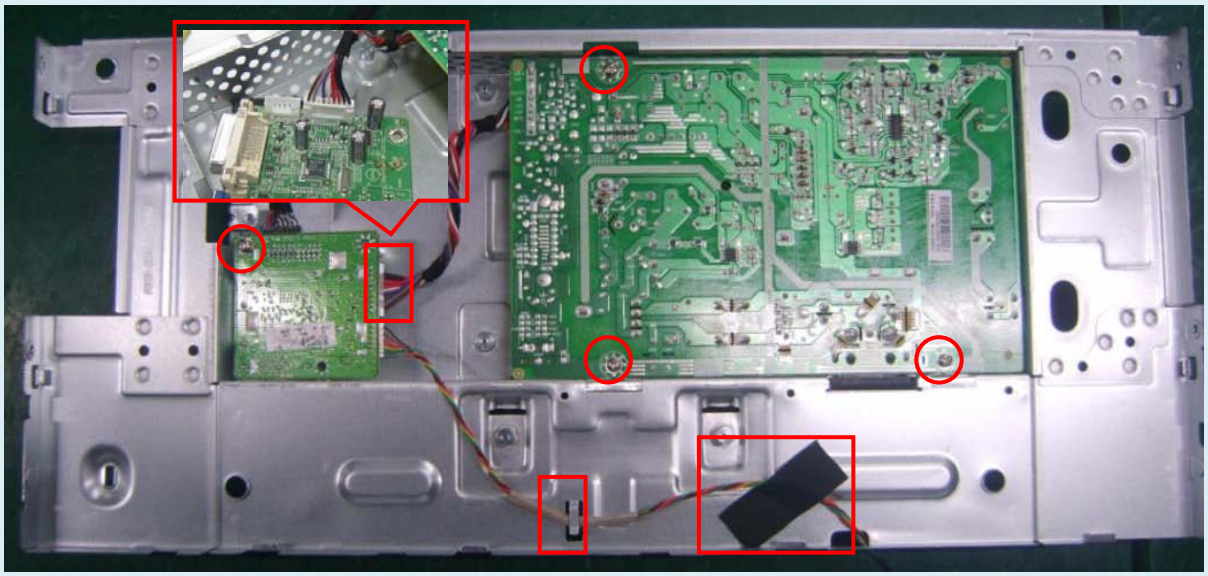
Remove the rear cover as follow:

4) Remove the key board from the bezel.

5) Remove the main frame from the panel.



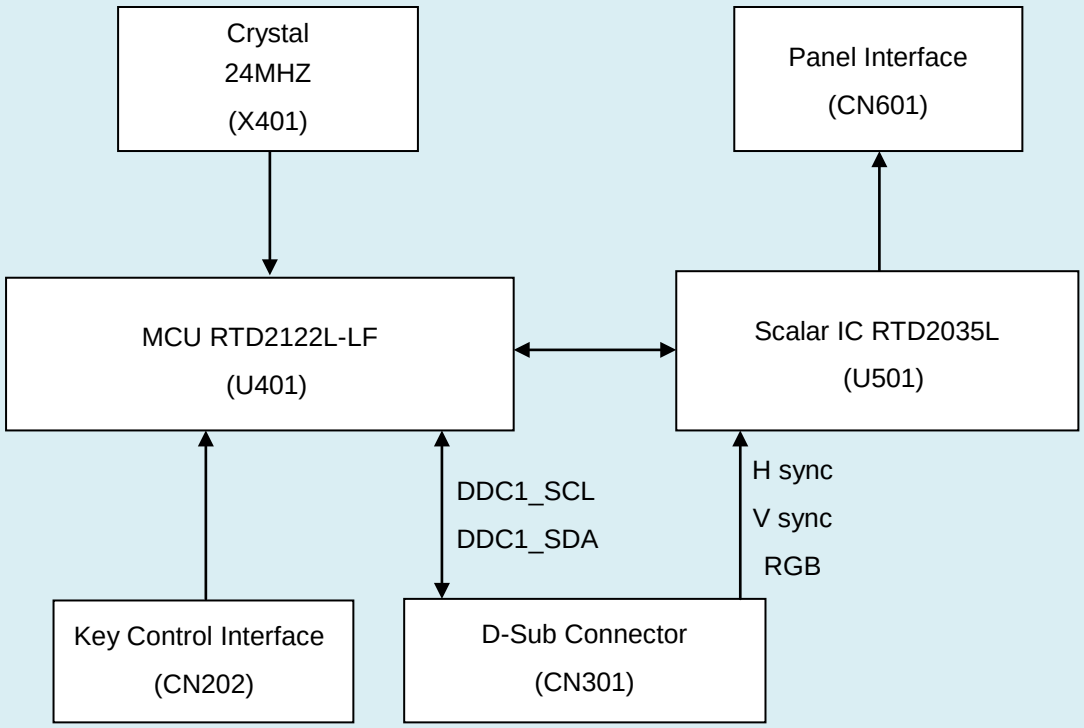
6) Remove the boards from the main frame.



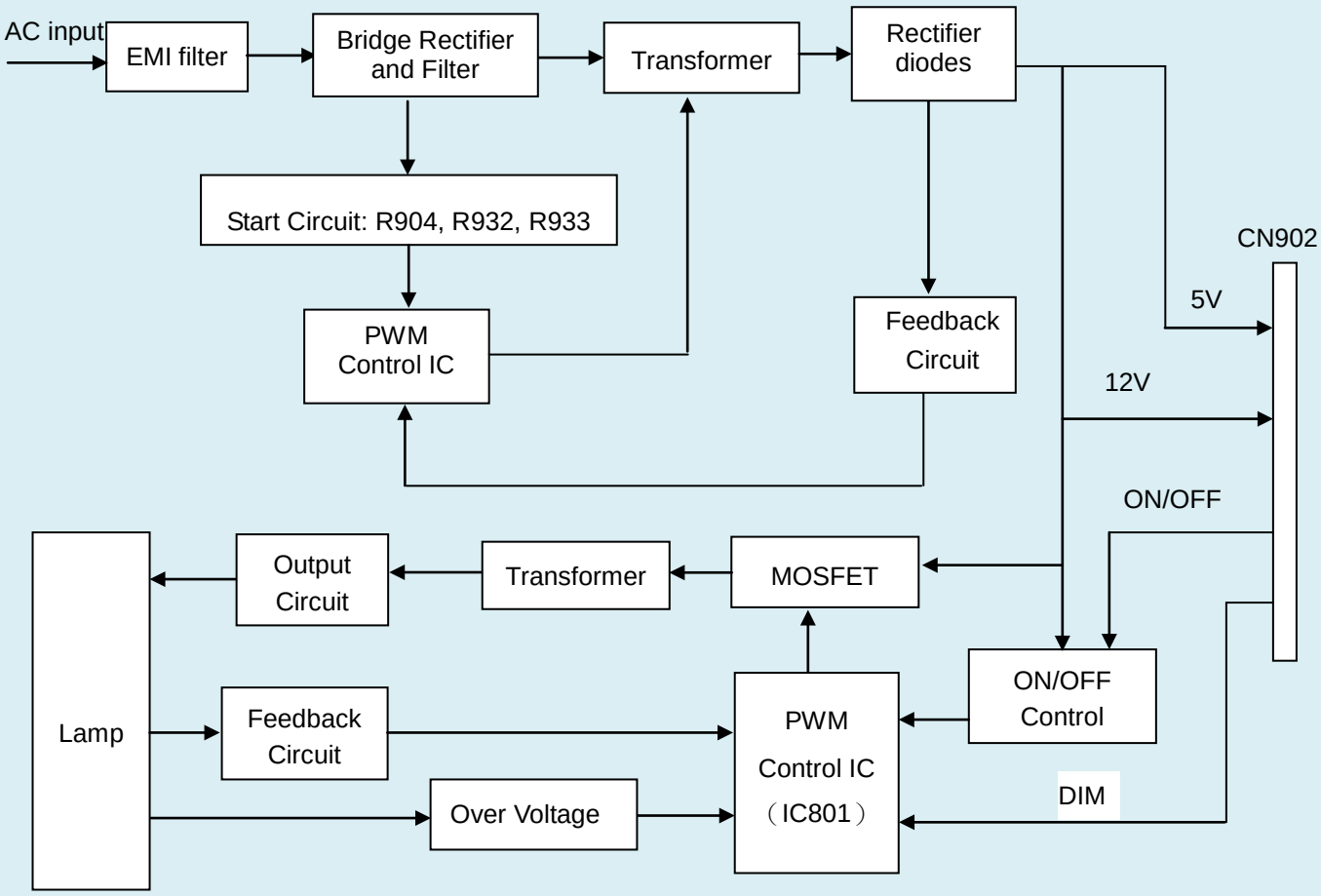
7) The panel

Block Diagram

Main Board

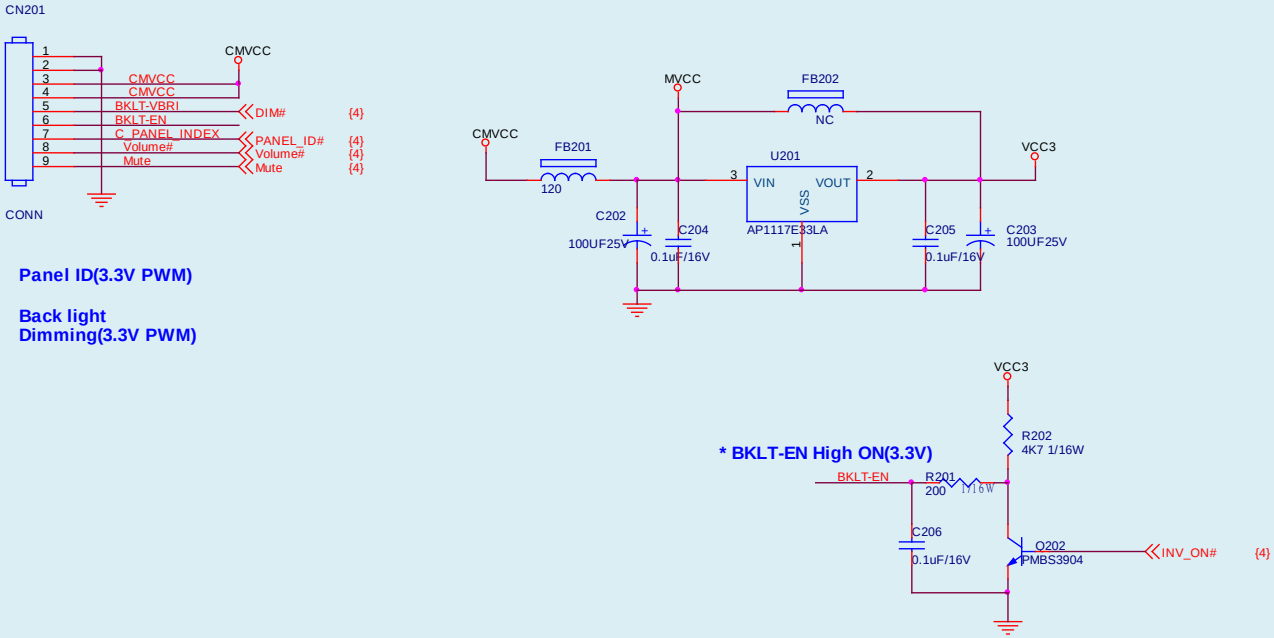


Power Board

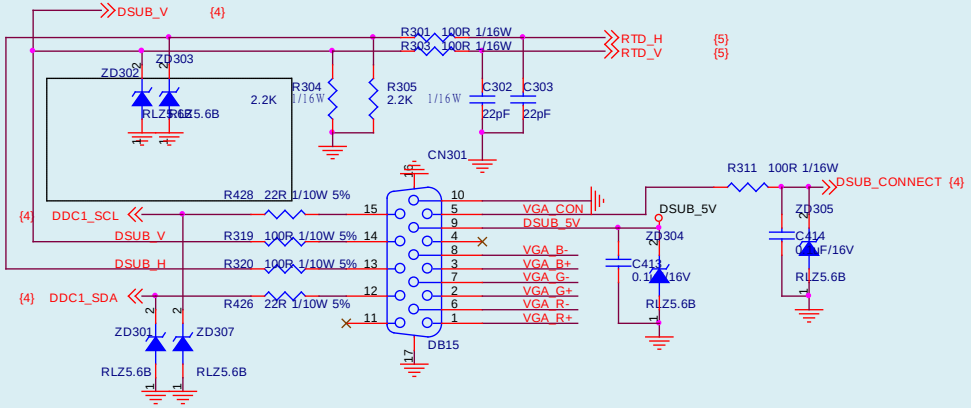

AC input
EMI filter
Bridge Rectifier and Filter
Transformer
Rectifier diodes
Start Circuit: R904, R932, R933
PWM Control IC
Feedback Circuit
CN902
5V
12V
ON/OFF
Lamp
Output Circuit
Transformer
MOSFET
Feedback Circuit
Over Voltage
PWM Control IC （IC801）
ON/OFF Control
DIM

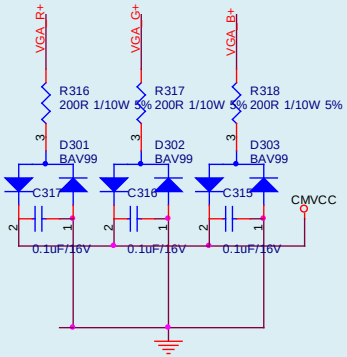
Schematic Diagram

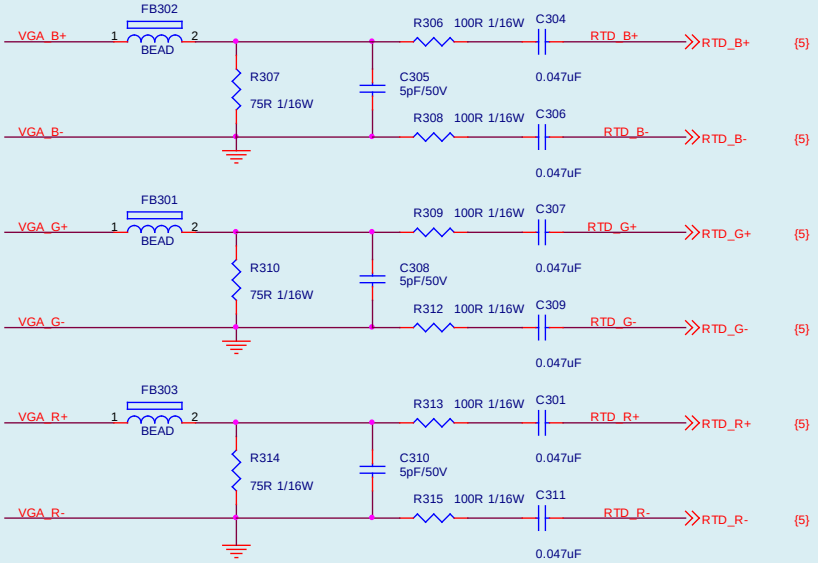
Main Board



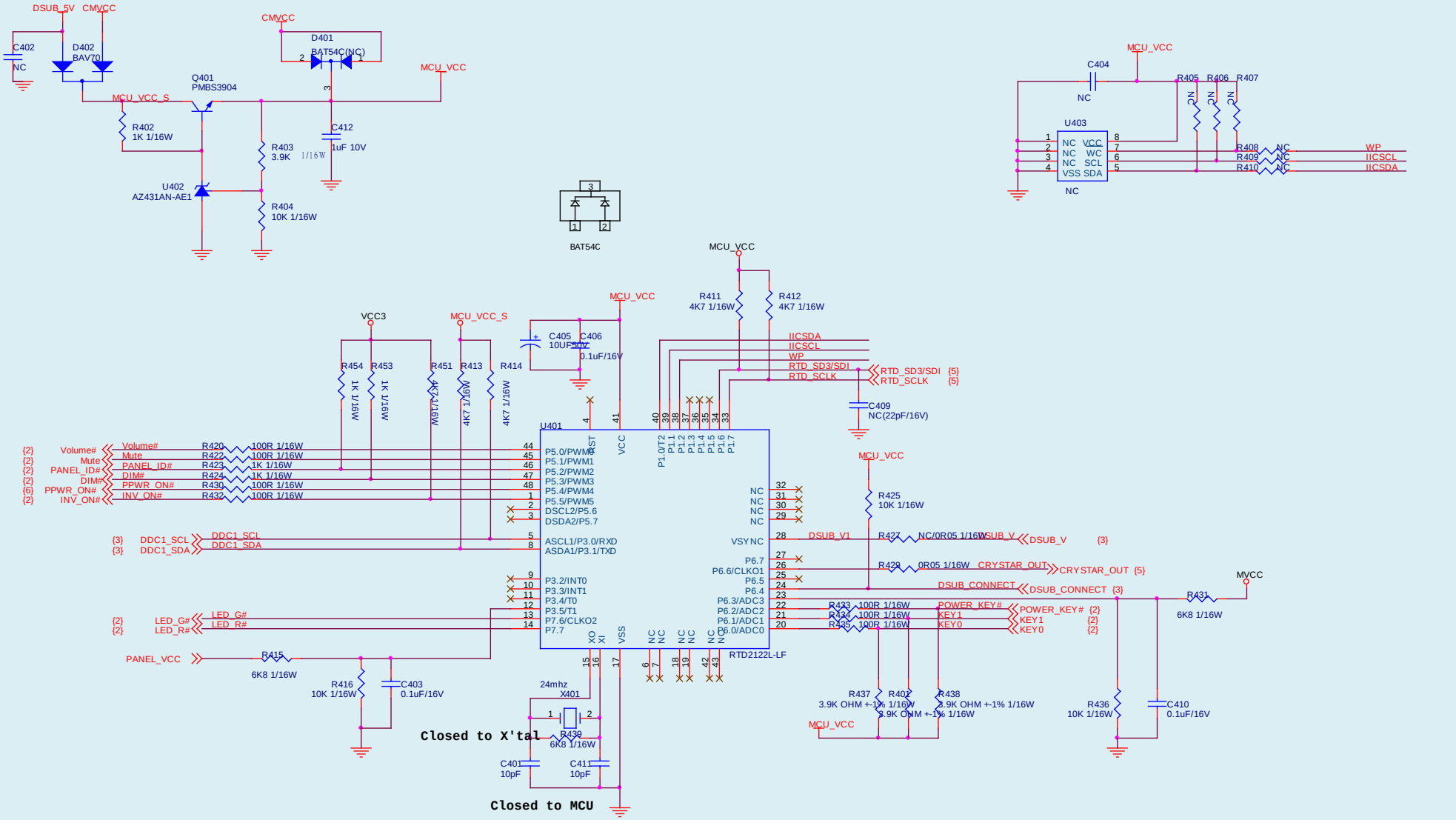
T P V （Top Victory Electronics Co . , Ltd. ）		OEM MODEL	BenQ G922HDAL	Size	B
筮 隔 瓜 蝌 腹	G2498-2A-AO-X-16-091216	TPV MODEL	T89ARPMCFWBQNN	Rev	1.0
Key Component	3.POWER	PCB NAME	715G2498-2A-AO	称爹	<称爹>
Date	Wednesday, December 16, 2009	Sheet	3 of 7		



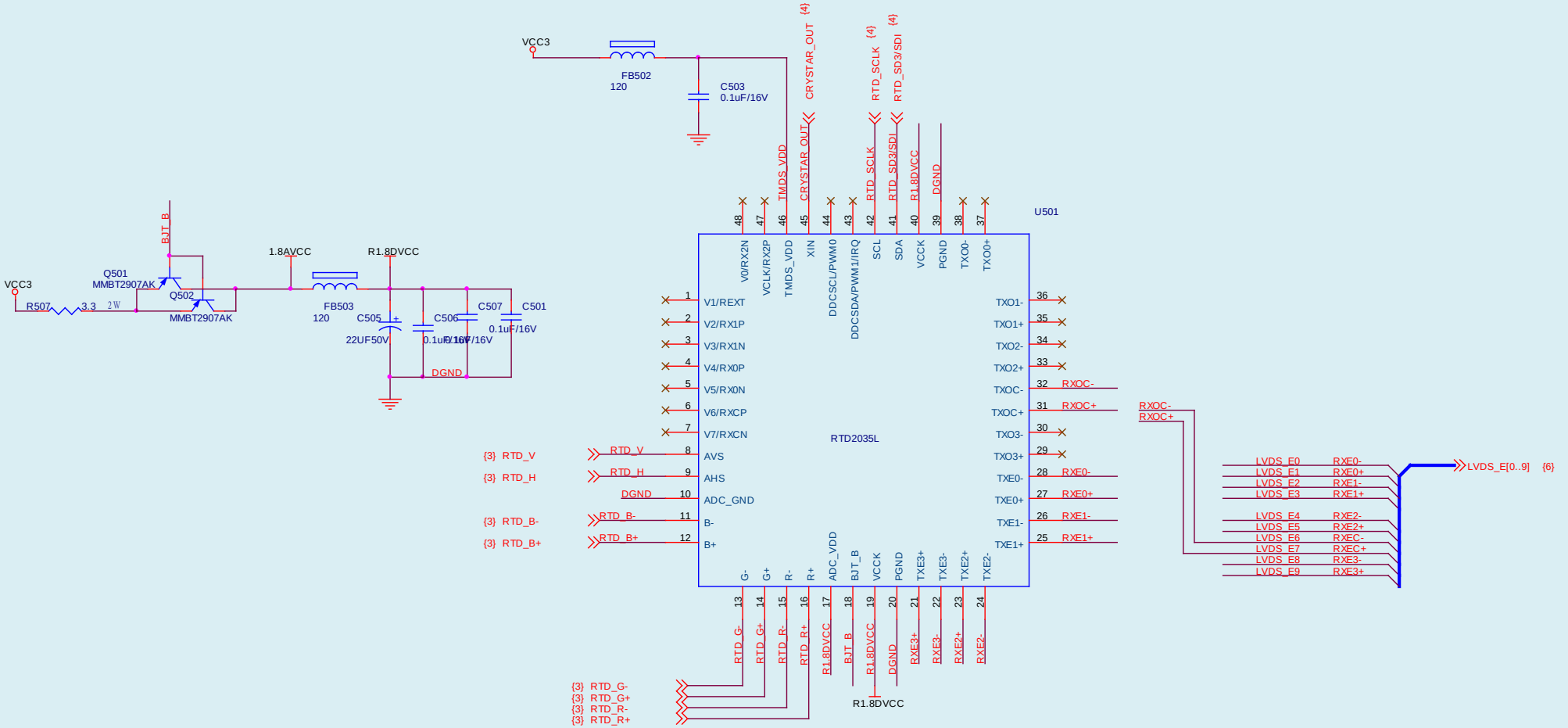




T P V （Top Victory Electronics Co . , Ltd. ）		OEM MODEL	BenQ G922HDAL	Size	B
結 隔 瓜 綱 腹	G2498-2A-AO-X-16-091216	TPV MODEL	T89ARPMCFWBQNN	Rev	1.0
Key Component	4.INPUT	PCB NAME	715G2498-2A-AO	称爹	<称爹>
Date	Wednesday , December 16, 2009	Sheet	4 of 7		

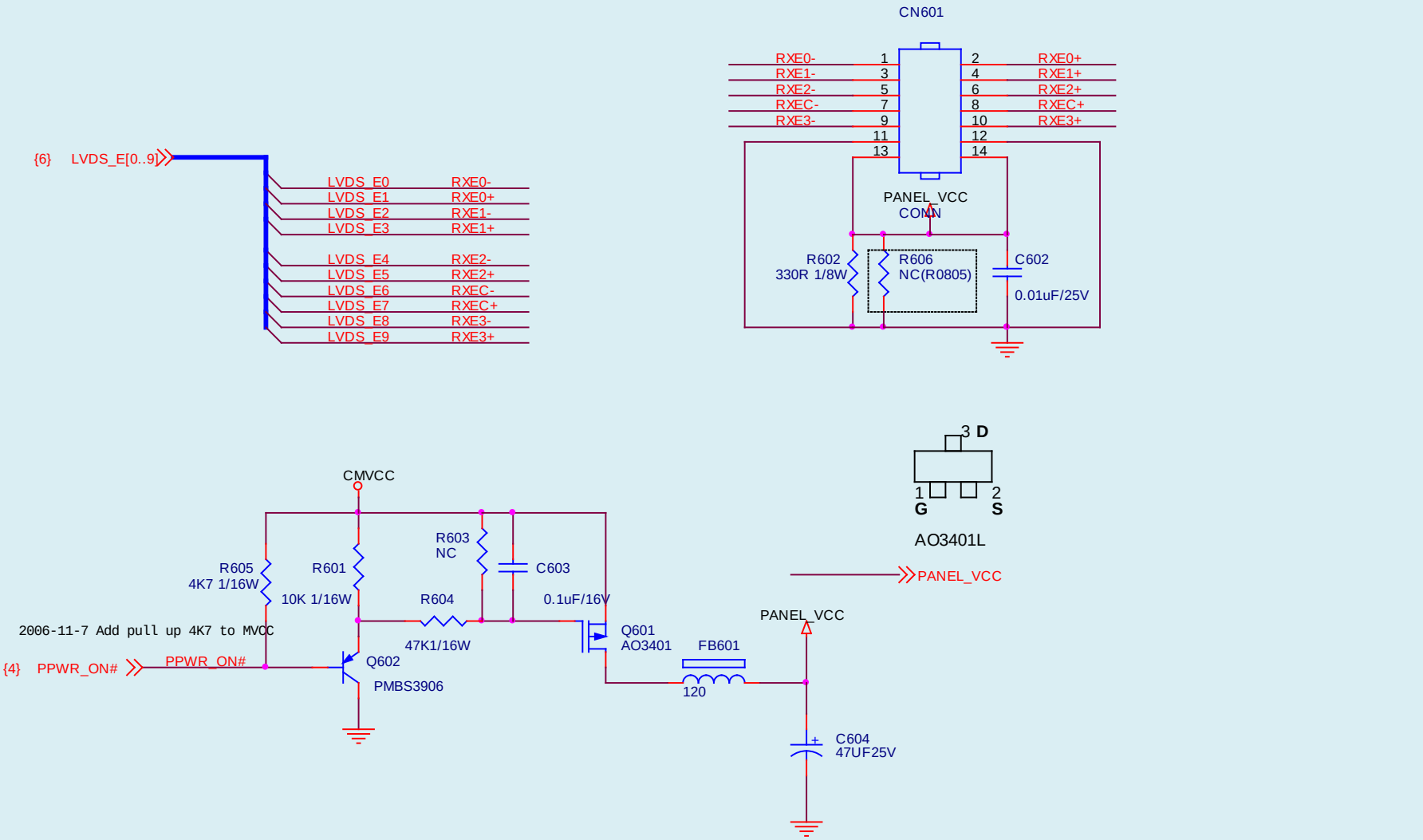


T P V （Top Victory Electronics Co . , Ltd. ）		OEM MODEL	BenQ G922HDAL	Size	B
延 陽 瓜 貓 腹	G2498-2A-AO-X-16-091216	TPV MODEL	T89ARPMCFWBQNN	Rev	1.0
Key Component	5.MCU/RTD2122	PCB NAME	715G2498-2A-AO	称多	<称多>
Date	Thursday , December 17, 2009	Sheet	5 of 7		



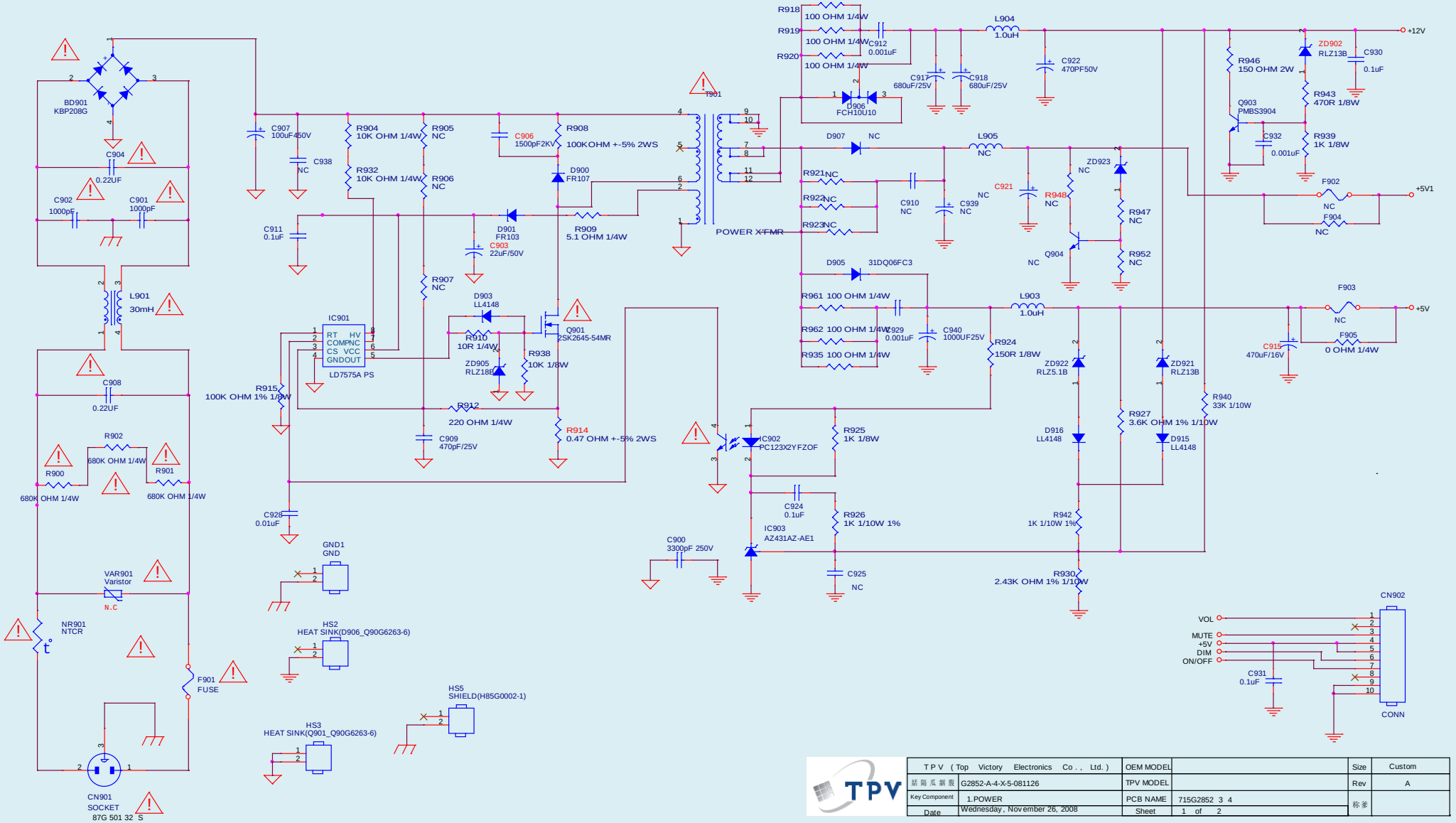
T P V (Top Victory Electronics Co . , Ltd.)		OEM MODEL	BenQ G920HDAL	Size	B
結 隔 瓜 鎖 腹	G2498-2A-AO-X-16-091216	TPV MODEL	T89ARPMCFWBQNN	Rev	1.0
Key Component	6.RTD2035L	PCB NAME	715G2498-2A-AO	称爹	<称爹>
Date	Wednesday , December 16, 2009	Sheet	6 of 7		

LVDS Panel (Normal Type)

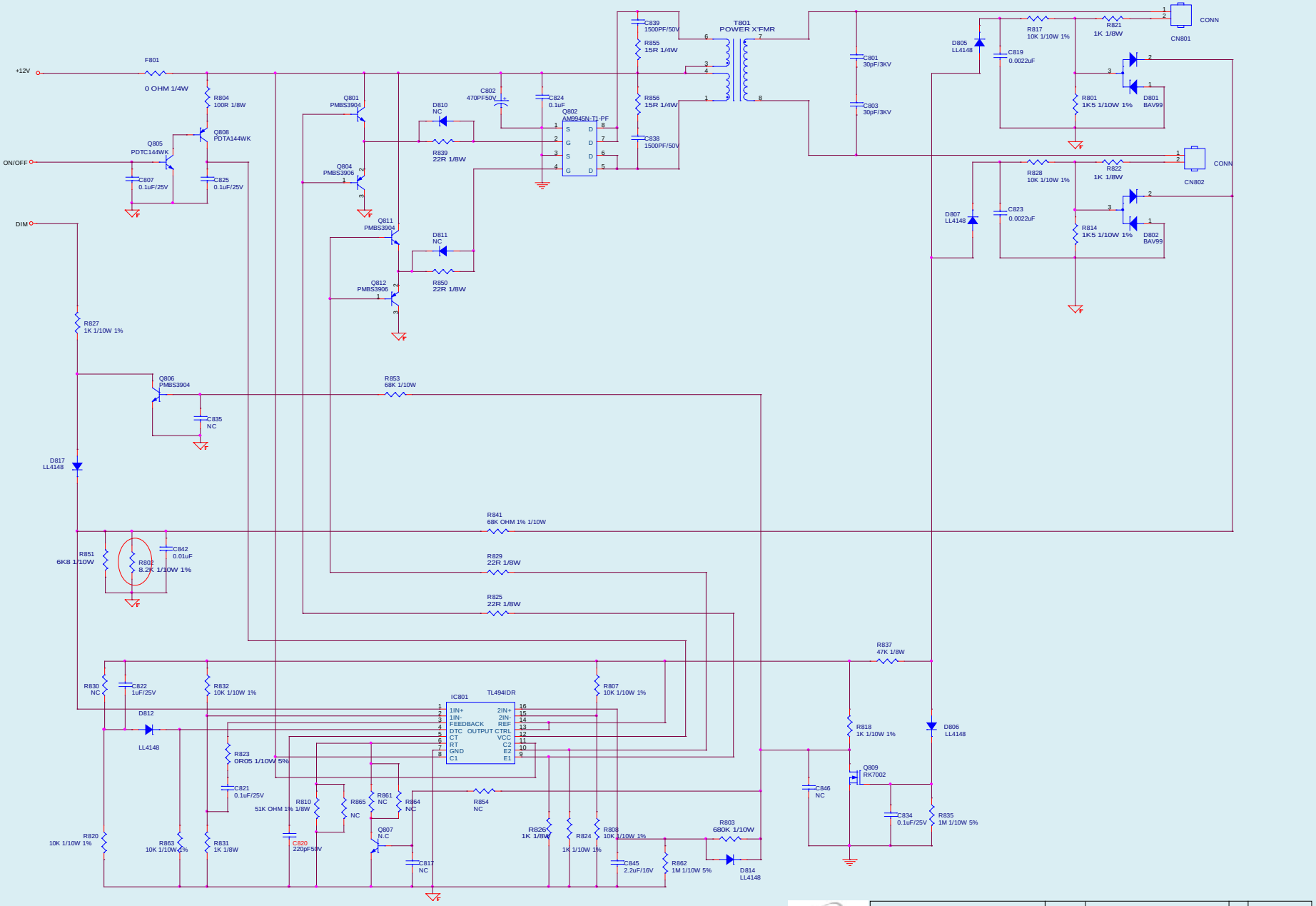


T P V (Top Victory Electronics Co . , Ltd.)		OEM MODEL	BenQ G920HDAL	Size	A
結 隔 瓜 網 腹	G2498-2A-AO-X-16-091216	TPV MODEL	T89ARPMCFWBQNN	Rev	1.0
Key Component	7.OUTPUT	PCB NAME	715G2498-2A-AO	称爹	<称爹>
Date	Thursday, December 17, 2009	Sheet	7 of 7		

Power Board

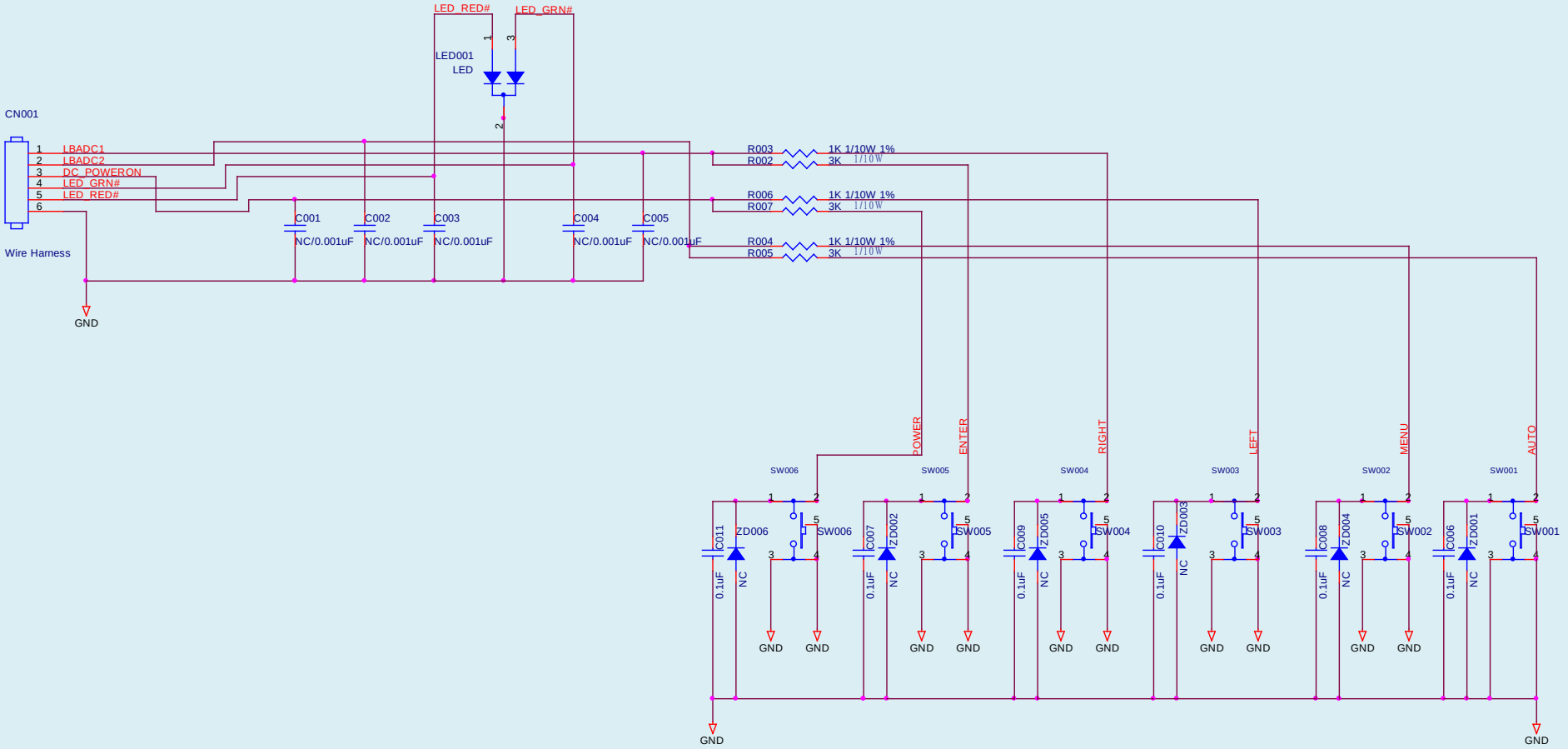


T P V (Top Victory Electronics Co . , Ltd.)		OEM MODEL		Size	Custom
基 陽 瓜 顏 股	G2852-A-4-X-5-081126	TPV MODEL		Rev	A
Key Component	1.POWER	PCB NAME	715G2852 3 4		
Date	Wednesday, November 26, 2008	Sheet	1 of 2	称 爹	



T P V (Top Victory Electronics Co . , Ltd.)		OEM MODEL		Size	Custom
基 箱 瓜 描 圖	G2852-A-4-X-5-081126	TPV MODEL		Rev	A
Key Component	2.INVERTER	PCB NAME	715G2852-3-4	称 署	ODM MODEL
Date	Wednesday, November 26, 2008	Sheet	2 of 2		

Key Board



T P V (Top Victory Electronics Co . , Ltd.)		OEM MODEL		Size	B
紙 隔 瓜 網 腹	G3367-C-X-X-1-081013	TPV MODEL		Rev	C
Key Component	02.KEY_BOARD	PCB NAME	715G3367-C	称爹	<称爹>
Date	Wednesday, December 03, 2008	Sheet	2 of 2		

Troubleshooting

Frequently asked questions (FAQ)

The image is blurred:

Read the instructions on the link "**Adjusting the Screen Resolution**" on the CD, and then select the correct resolution, refresh rate and make adjustments based on these instructions.

How do you use a VGA extension cable?

Remove the extension cable for the test. Is the image now in focus? If not, optimize the image by working through the instructions in the "**Adjusting the refresh rate**" section on the link "**Adjusting the Screen Resolution**". It is normal for blurring to occur due to conduction losses in extension cables. You can minimize these losses by using an extension cable with better conduction quality or with a built-in booster.

Does the blurring only occur at resolutions lower than the native (maximum) resolution?

Read the instructions on the link "**Adjusting the Screen Resolution**" on the CD. Select the native resolution.

Pixel errors can be seen:

One of several pixels is permanently black, one or more pixels are permanently white, one or more pixels are permanently red, green, blue or another color.

- Clean the LCD screen.
- Cycle power on-off.
- These pixels are permanently on or off and that is a natural defect occurs in LCD technology.

The image has a faulty coloration:

It has a yellow, blue or pink appearance.

Select MENU > PICTURE > Color > Reset Color, and then choose “YES” in the “Caution” message box to reset the color settings to the factory defaults.

If the image is still not correct and the OSD also has faulty coloration, this means one of the three primary colors is missing in the signal input. Now check the signal cable connectors. If any pin is bent or broken off, please contact your dealer to get necessary support.

No image can be seen:

Is the prompt on the display illuminated in green?

If the LED is illuminated in green and there is a message “Out of Range” on the screen, this means you are using a display mode that this monitor does not support, please change the setting to one of the supported mode. Please read the “**Preset display modes**” section from the link "**Adjusting the Screen Resolution**".

Faint shadow from the static image displayed is visible on the screen:

- Activate the power management function to let your computer and monitor go into a low power "sleep" mode when not actively in use.
- Use a screensaver to prevent the occurrence of image retention.

Is the prompt on the display illuminated in orange?

If the LED is illuminated in orange, the power management mode is active. Press any button on the computer keyboard or move the mouse. If that does not help, check the signal cable connectors. If any pin is bent or broken off, please contact your dealer to get necessary support.

Is the prompt on the display not illuminated at all?

Check the power supply mains socket, the external power supply and the mains switch.

The image is distorted, flashes or flickers:

Read the instructions on the link "**Adjusting the Screen Resolution**" on the CD, and then select the correct resolution, refresh rate and make adjustments based on these instructions.

You are running the monitor at its native resolution, but the image is still distorted.

Images from different input sources may appear distorted or stretched on the monitor running at its native resolution. To have the optimal display performance of each type of input sources, you can use the "Display Mode" function to set a proper aspect ratio for the input sources.

The image is displaced in one direction:

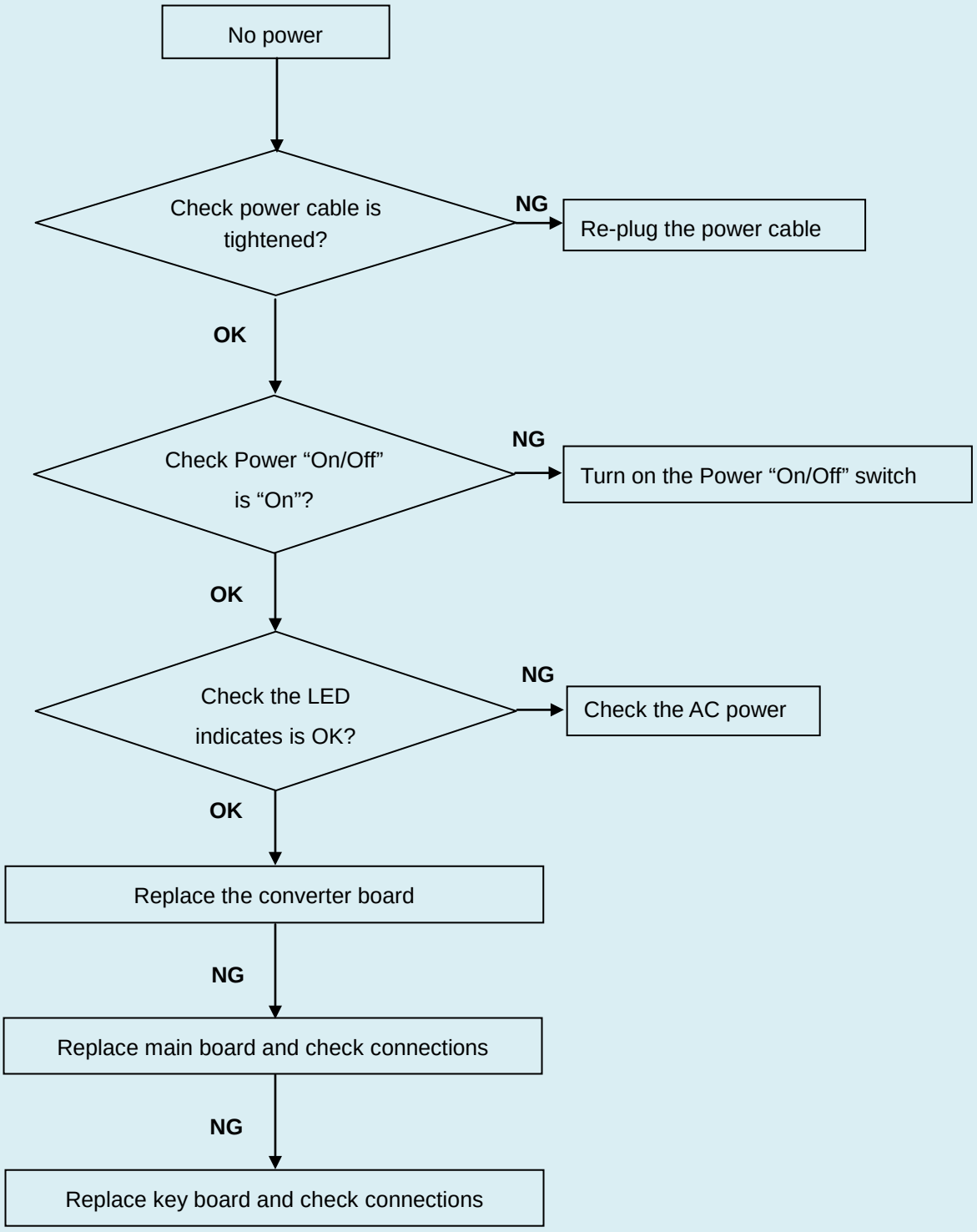
Read the instructions on the link "**Adjusting the Screen Resolution**" on the CD, and then select the correct resolution, refresh rate and make adjustments based on these instructions.

The OSD controls are inaccessible:

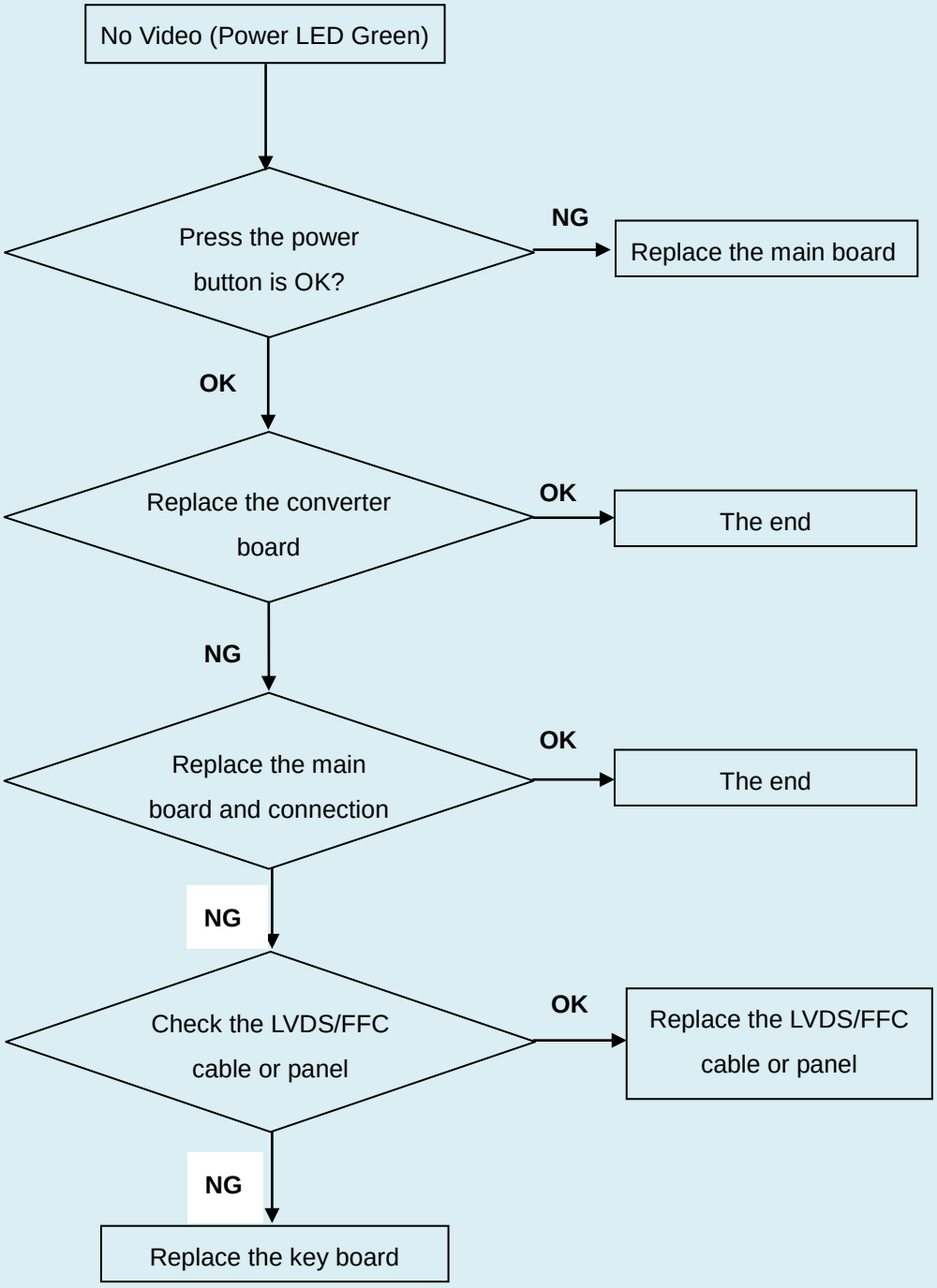
- To unlock the OSD controls when the OSD is preset to be locked, press and hold the “MENU” key for 15 seconds to enter the “OSD Lock” option and make changes.
- Alternatively, you may use ◀ or ▶ keys to select “NO” in the “OSD Lock” submenu from the “OSD Settings” menu (under SYSTEM), and all OSD controls will be accessible.

If your problems remain after checking this manual, please contact your place of purchase or e-mail us at: Support@BenQ.com

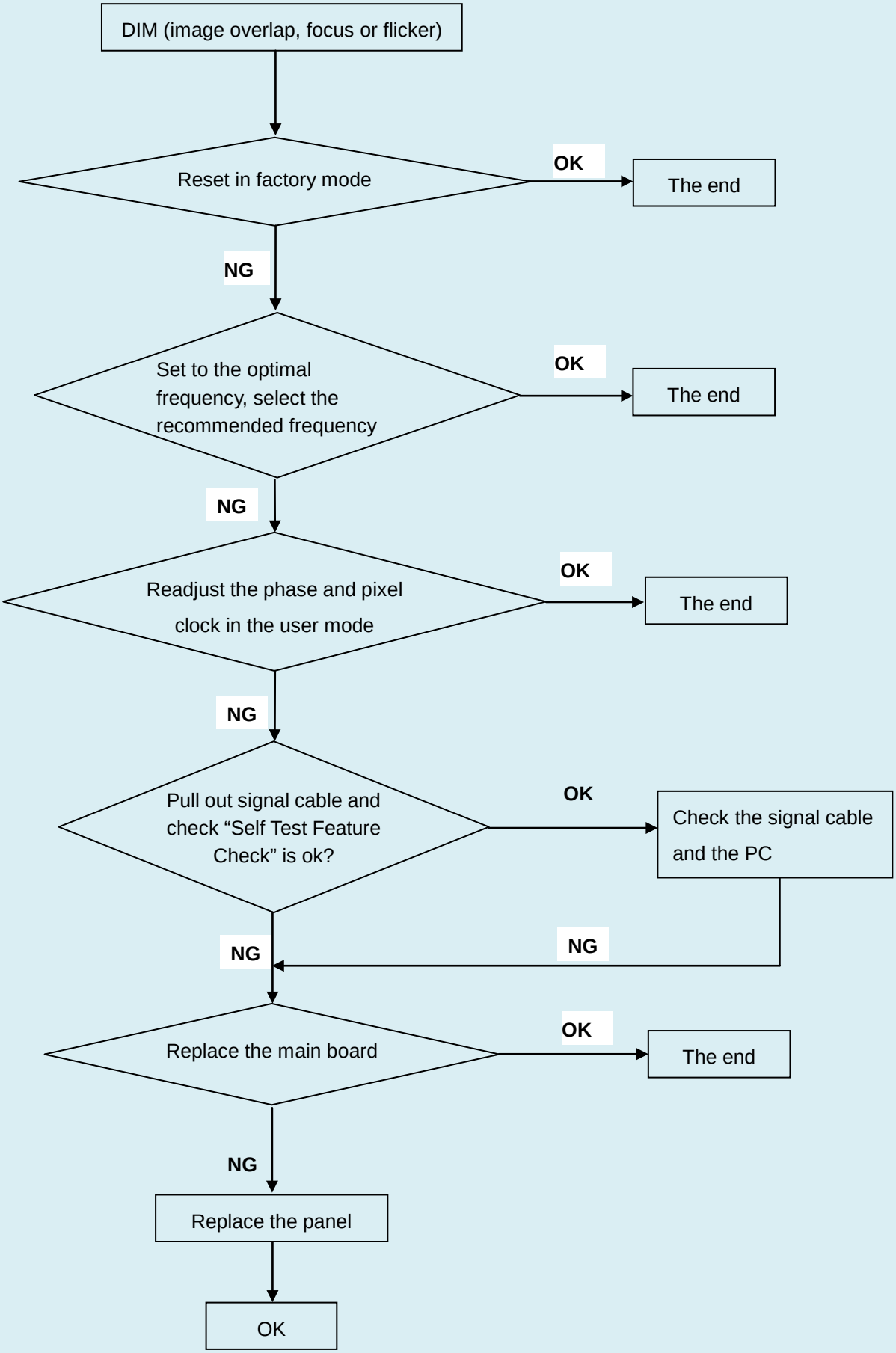
No Power


No power
Check power cable is tightened?
NG
Re-plug the power cable
OK
Check Power “On/Off” is “On”?
NG
Turn on the Power “On/Off” switch
OK
Check the LED indicates is OK?
NG
Check the AC power
OK
Replace the converter board
NG
Replace main board and check connections
NG
Replace key board and check connections

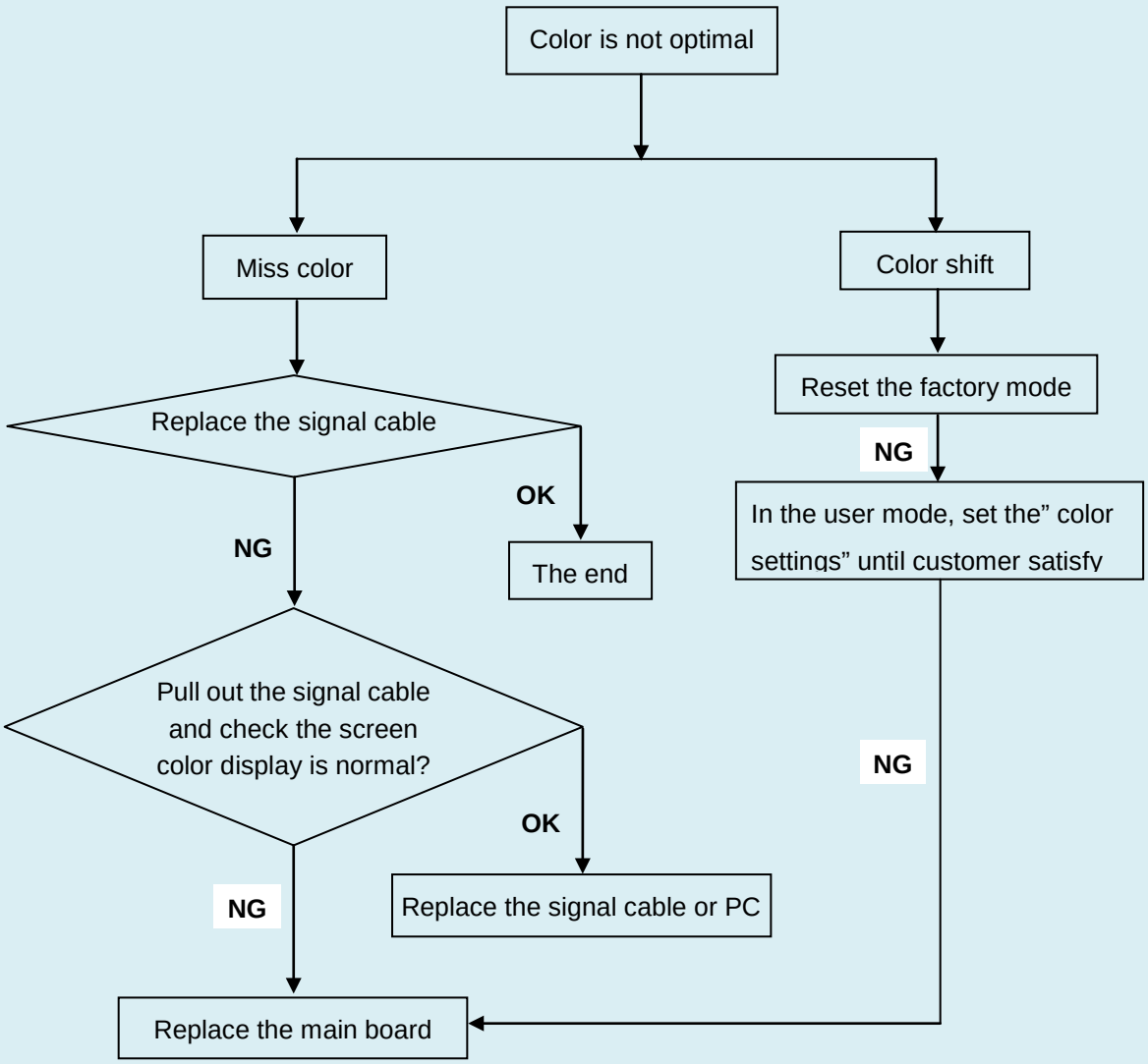
No Video (Power LED Green)



DIM

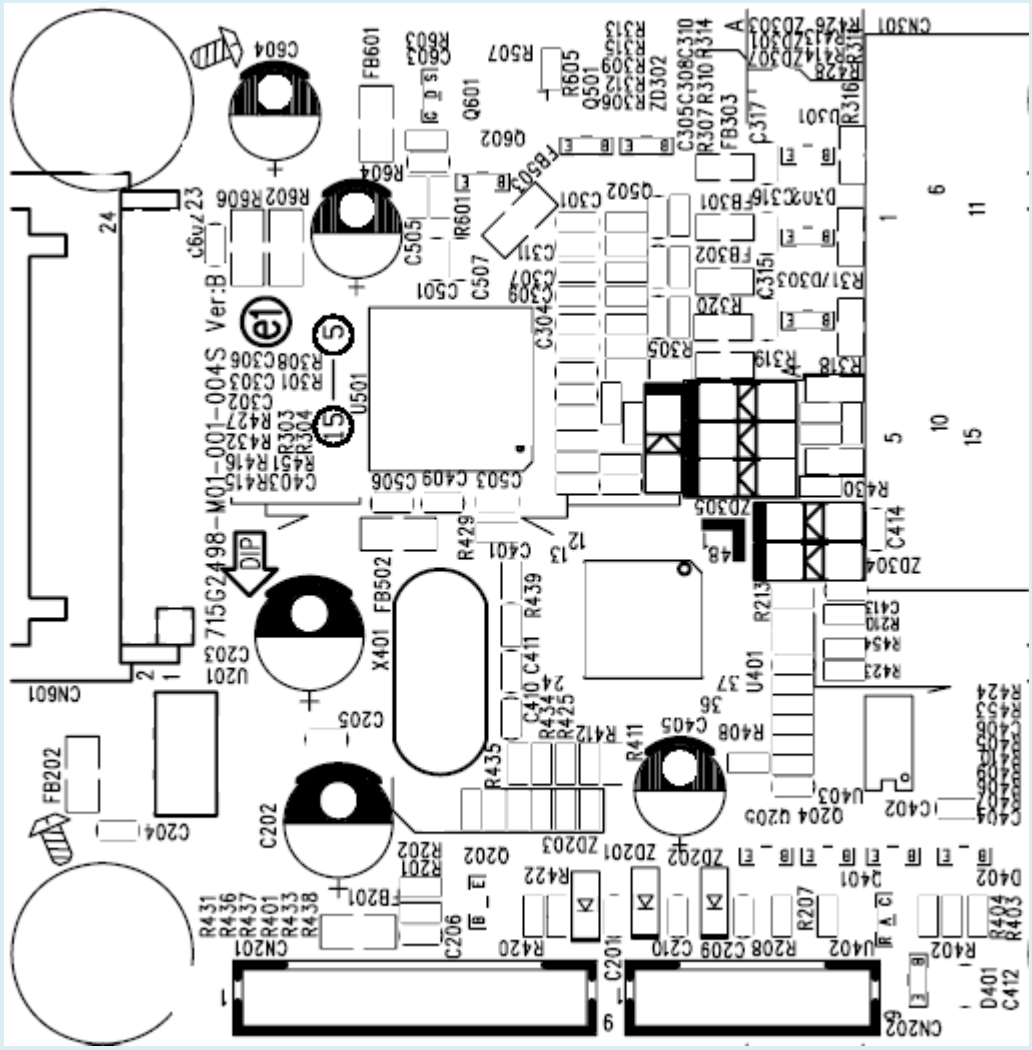

DIM (image overlap, focus or flicker)
Reset in factory mode
OK
The end
NG
Set to the optimal frequency, select the recommended frequency
OK
The end
NG
Readjust the phase and pixel clock in the user mode
OK
The end
NG
Pull out signal cable and check “Self Test Feature Check” is ok?
OK
Check the signal cable and the PC
NG
NG
Replace the main board
OK
The end
NG
Replace the panel
OK

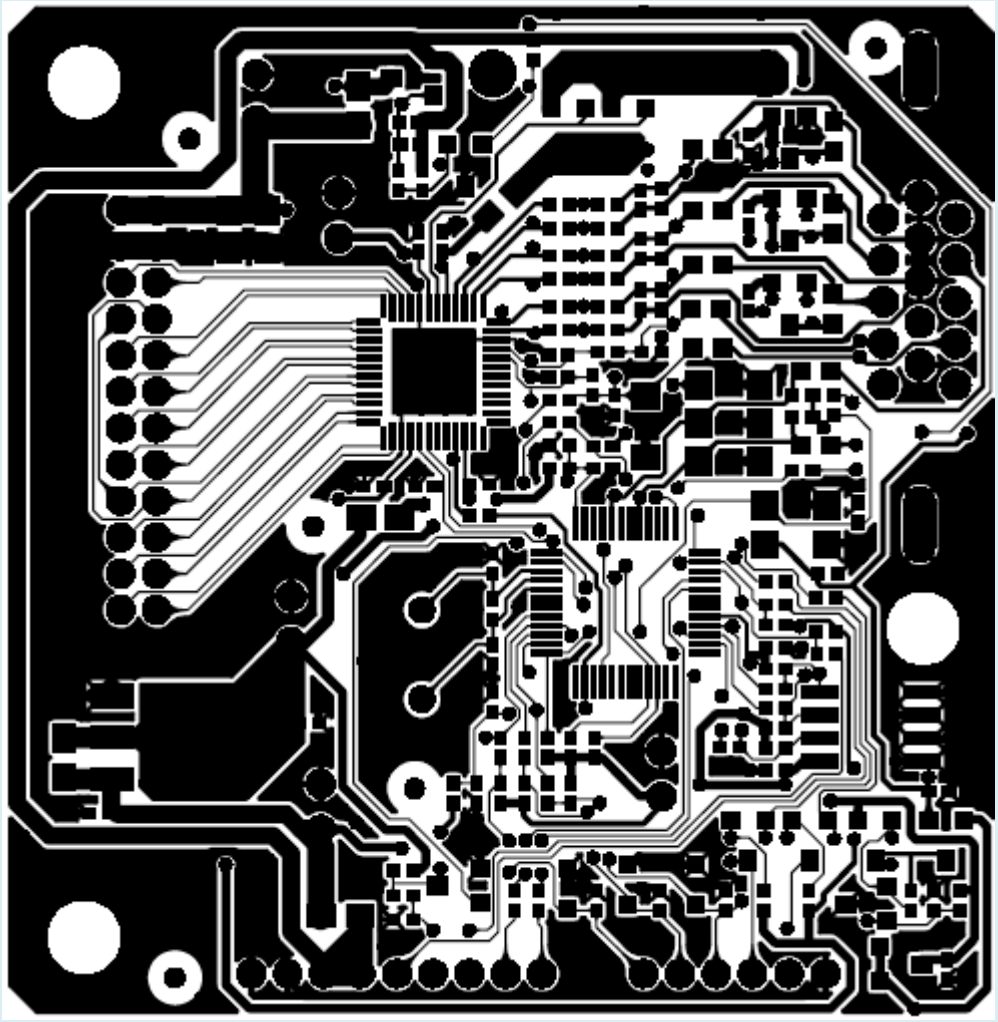
Color is not optimal

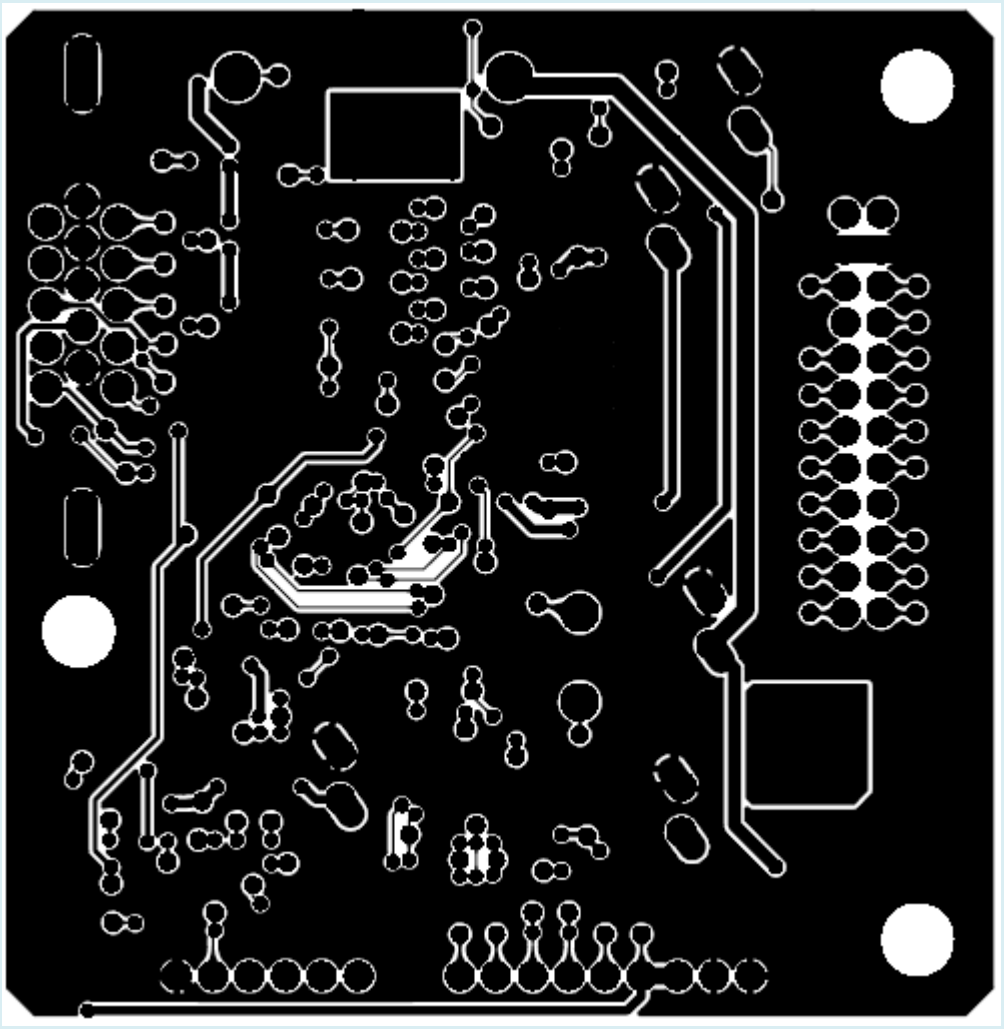


PCB LAYOUT

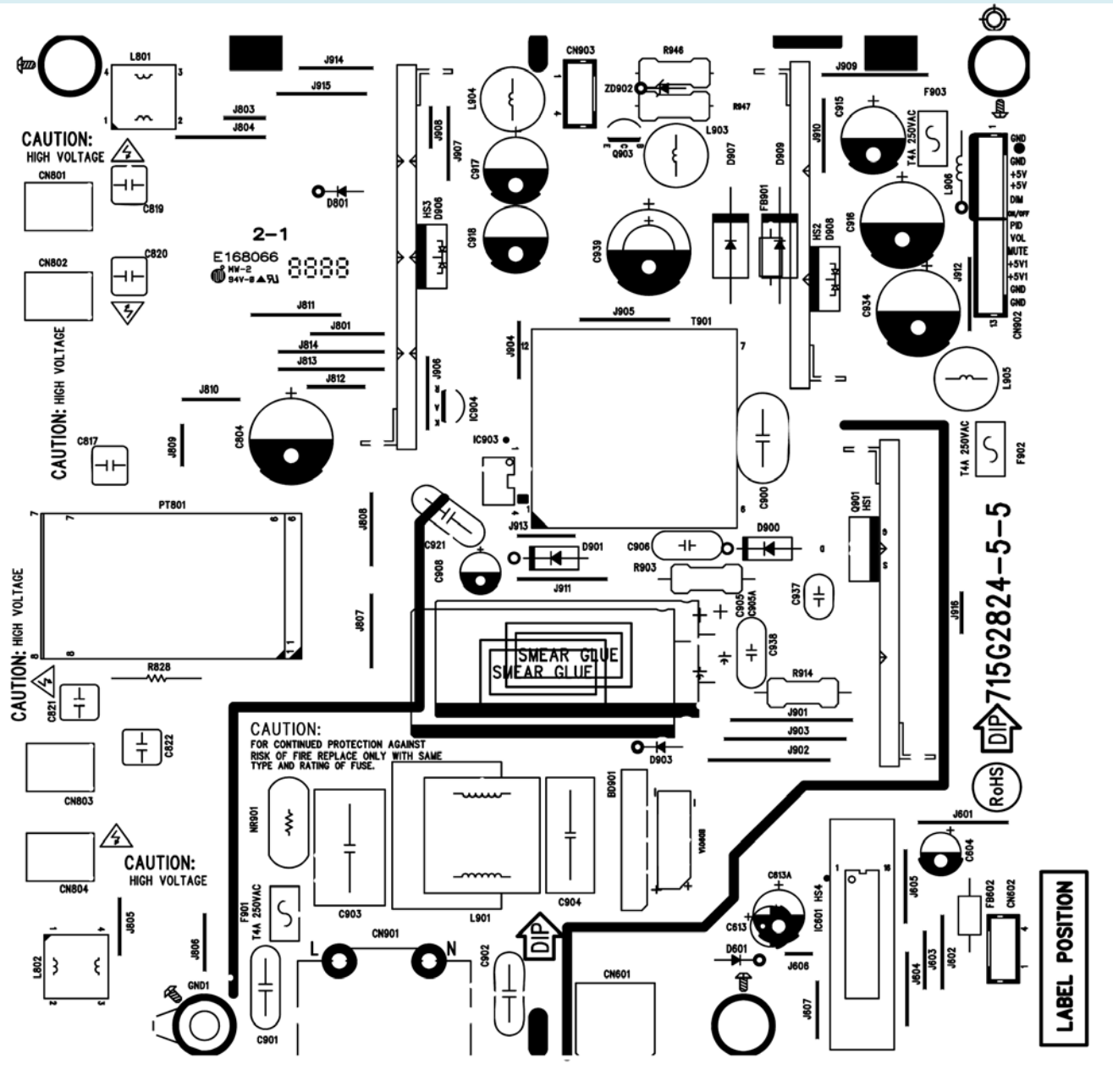
Main Board

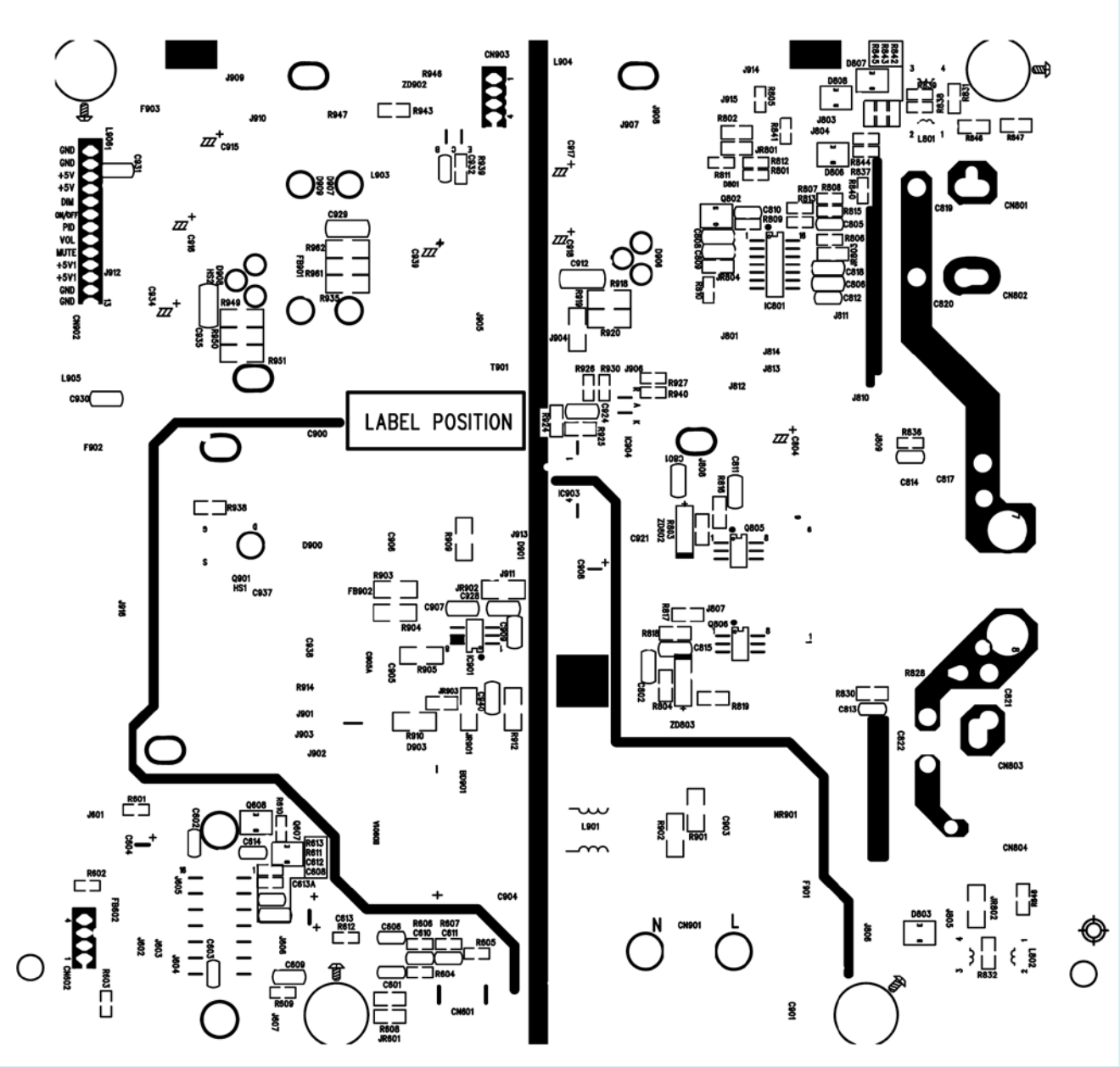


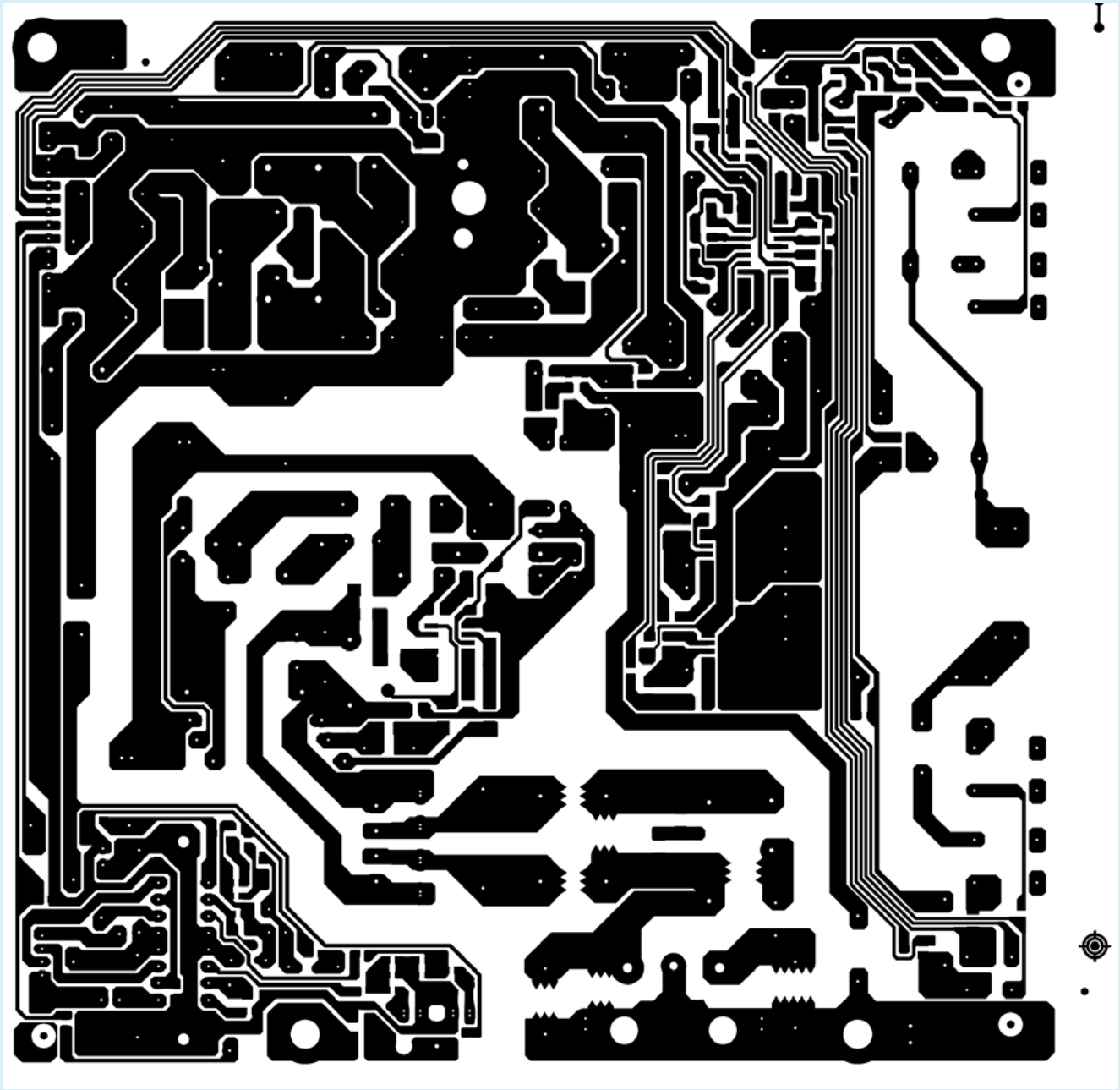




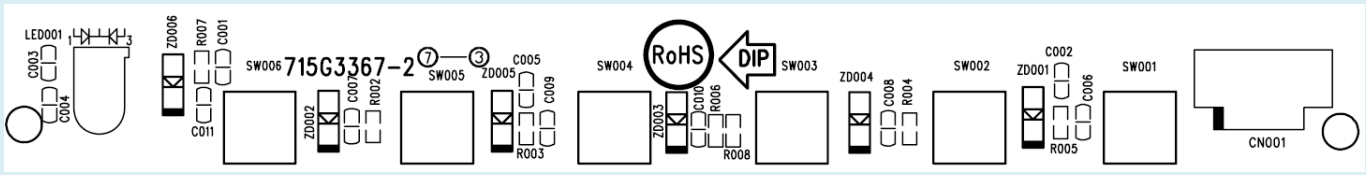
Power Board

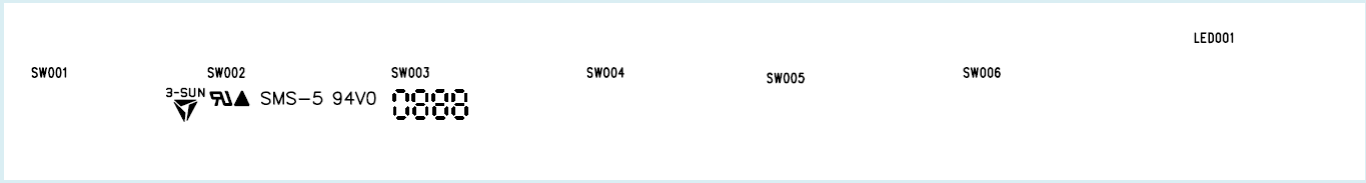

CAUTION:
HIGH VOLTAGE
CAUTION: HIGH VOLTAGE
CAUTION: HIGH VOLTAGE
CAUTION: HIGH VOLTAGE
CAUTION:
FOR CONTINUED PROTECTION AGAINST
RISK OF FIRE REPLACE ONLY WITH SAME
TYPE AND RATING OF FUSE.
SMEAR GLUE
SMEAR GLUE
715G2824-5-5
RoHS
LABEL POSITION
2-1
E168066
T4A 250VAC
T4A 250VAC
T4A 250VAC
GND
GND
+5V
+5V
DIM
PID
VOL
MUTE
+5V1
+5V1
GND
GND
L
N

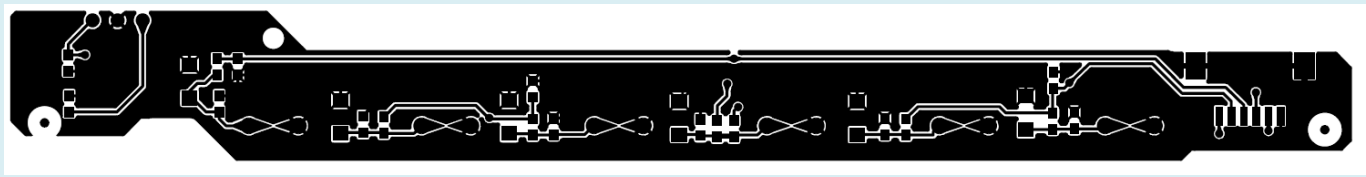

LABEL POSITION
GND
GND
+5V
+5V
DIM
ON/OFF
PID
VOL
MUTE
+5V1
+5V1
GND
GND
N
L

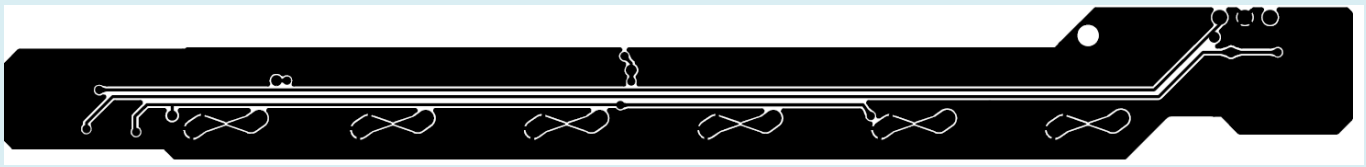


Key Board


LED001
C003
C004
ZD006
R007
C001
C011
SW006
715G3367-2
SW005
ZD005
C005
R003
ZD002
C007
R002
C009
SW004
RoHS
DIP
SW003
ZD003
C010
R006
R008
ZD004
C008
R004
SW002
ZD001
C002
R005
C006
SW001
CN001


LED001
SW001
SW002
SW003
SW004
SW005
SW006
3-SUN
SMS-5 94V0





Appendix 1 – Screw List / Torque

(T8AARPD8FWBUNN)

Part No.	Type	Description	Quantity	Torque
0M1G 130 6120	M3*6	PANEL& MAINFRAME	3	3 ± 0.5kgf.cm
0M1G1030 6120	M3*6	PCB & MAINFRAME	4	6 ± 1kgf.cm
AQ1G1740 12120	Q4*12	HINGE & STAND	2	12 ± 2kgf.cm
0M1G1740 8 47 CR3	M4*8	HINGE & STAND	1	6 ± 1kgf.cm
AM1G1740 12 47 CR3	M4*12	HINGE & STAND&MAINFRAME	2	6± 1kgf.cm